

OUTER SPACE AND ARMS CONTROL

by

Walter C. Clemens, Jr.

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## FOREWORD

This study has been prepared for distribution by the M.I.T. Center for Space Research. It is expected that further revisions will be made in the study to take account of continuing negotiations on an arms control treaty for outer space in the fall and winter of 1966. It is hoped that readers of this study will send comments and criticisms to the author, whether on matters of detail or general perspective, so that they may be considered in preparing the final draft.

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Walter C. Clemens, Jr.  
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## INTRODUCTION

Three steps toward space arms control in 1963 encouraged Adlai E. Stevenson to declare that, in the half dozen years since man discovered how to escape from his earthly environment, "there has been enough social progress to sustain the hope that outer space will not be chaotic."<sup>1</sup> The progress made in those few years, he predicted, "if pursued, could make this the first age of exploration not in the name of national glory but in the name of man himself."

The U.S. Ambassador to the United Nations based his assessment in part on the resolution adopted by the General Assembly in October 1963, welcoming

the expressions by the Union of Soviet Socialist Republics and the United States of America of their intention not to station in outer space any objects carrying nuclear weapons of mass destruction.<sup>2</sup>

Second, Stevenson had in mind the treaty prohibiting the testing of nuclear weapons in outer space, in the atmosphere, and under water;<sup>3</sup> third, he referred to a General Assembly Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space.<sup>4</sup>

Stevenson went so far as to assert:

In short, we have rejected the political philosophy which made the last age of discovery an age of national conquest and conflict, and projected a political philosophy which promises to make this new age of discovery one of cooperation and benefit for all mankind. In outer space, if you please, our sense of social responsibility and our capacity for social invention are not doing badly in response to the challenge laid down by the inventions of our scientists.<sup>5</sup>

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<sup>1</sup>Statement to the First Committee of the General Assembly, December 2, 1963, U.N. Doc. A/C.1/PV.1342, pp. 6-13.

<sup>2</sup>General Assembly Resolution 1884 (XVIII): Stationing Weapons of Mass Destruction in Outer Space, October 17, 1963, adopted by acclamation.

<sup>3</sup>The treaty was initialed in Moscow on July 25, 1963; signed on August 5, 1963, by the foreign ministers of the Soviet Union, United Kingdom, and United States; and entered into force on October 10, 1963.

<sup>4</sup>General Assembly Resolution 1962 (XVIII); unanimously adopted by the General Assembly on December 13, 1963; it had been submitted to that body by the U.N. Committee on the Peaceful Uses of Outer Space prior to Stevenson's speech.

<sup>5</sup>Stevenson's address of December 2, 1963, op. cit.

Ambassador Stevenson was correct: Much progress had been made. For once, political planning was not doing "badly" in response to technological change. But the future remained open-ended. The great powers could revise their expressions of intent, if only because U.N. resolutions command but moral authority. It was still possible in 1963 and it remains possible in 1966 that the arms race may be extended into outer space, even though--like World War II--this would be a conflict "nobody" wanted or even expected.

The present study focuses on what has been the central problem of arms control for outer space: the launching of missiles through outer space and their deployment in outer space.<sup>1</sup> For about five years, 1955-1960, Western negotiators urged what we call here "preventive" arms control, the outlawing of medium- and long-range rockets that would pass through outer space en route to their terrestrial target. Before they were widely deployed, it was technically if not politically feasible to agree not to deploy them. After they were accumulated in large numbers, however, attention turned to another possible prophylactic measure: the banning of bombs stationed in orbit or on celestial bodies.

Although the main emphasis here is on direct military applications of space, particularly with respect to weapons of mass destruction, these must necessarily be dealt with in the framework of other military and political problems of outer space. Hence, reference is made to other direct military applications such as anti-satellite weapons and anti-missile defenses; to nuclear testing in space; to military support activities such as reconnaissance and communications; to negotiations regarding scientific cooperation in space; and to negotiations to establish international legal institutions governing space exploration.

But the main concern has been with measures of arms limitation. To be more precise, the topic has been "arms control" rather than "disarmament," since to date there seem to have been no weapons stationed in outer space. To be sure, if negotiations ever turned seriously to the elimination of land- and sea-launched missiles that pass through space, we would be dealing

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<sup>1</sup> Definitions of outer space still vary. For a wide spectrum of viewpoints, see Legal Problems of Space Exploration A Symposium, prepared for the Committee on Aeronautical and Space Sciences, U.S. Senate by the Legislative Reference Service, The Library of Congress (Washington: Government Printing Office, 1961).

with disarmament. Furthermore, for some years Soviet negotiators insisted that space arms controls be conditioned on terrestrial disarmament. History has shown, however, how supremely difficult it is to dismantle weapons once they are developed and deployed, particularly in comparison with the relative feasibility of non-deployment, either by tacit or explicit agreement.

The story of space arms control efforts replicates in microcosm many of the general characteristics of post-World War II negotiations on the limitation of armaments. The Western powers have typically proposed limited measures of arms control that seem pragmatic and feasible, steps that would make the world safer if not free from the threat of war. The Soviet Union has tended to reject these proposals, not only because they frequently entailed on-site inspection, but because they might manipulate the balance of power to Western advantage. Instead the Kremlin tended to advocate an "all or nothing" approach. Since 1955, however, and especially in 1963-1964, Moscow has espoused what it terms "partial disarmament," particularly where Washington has relaxed its demands for on-site inspection. Increasing Soviet realism, the decline of ideology and cold war hatreds, the greater possibilities for verification through national (home-based) inspection systems, the accomplishment of effective mutual deterrence, the rise of Communist China--all these factors have facilitated U.S.-Soviet arms control accords in outer space as well as on earth.

Another striking parallel between negotiations on space weapons and terrestrial armaments is their high political content. Both sides have used the negotiations as a sounding board for a number of political goals. In periods of tension, Realpolitik and disarmament "gamesmanship" have prevailed, one or both sides emphasizing their own military power as a bargaining tool to command concessions or, alternatively, underlining their own virtue as the champion of peace and the other's obstinate refusal to make reasonable concessions to reach a compromise accord. When the superpowers have sought to relax or to control tensions, however, they have found it convenient to talk about space cooperation and, as in 1963, to look for an arms control accord that would help stabilize incipient detente.

This book is neither a pure narrative history nor an explicit array of policy guidelines. The immediate and overriding objective is to trace the

efforts from 1955 to the present to ban weapons from outer space, and to analyze the forces conditioning these endeavors. But there is a subordinate, "policy" motive: to search the historical record for information and insights that may be useful in further efforts to control weapons in space. Particular attention is therefore given to the utility of the 1963 U.S.-Soviet understanding, formalized only in a U.N. resolution, and to the military-political advantages and disadvantages, as they appear in 1966, to a treaty prohibiting certain military functions in outer space. While the book attempts to argue the rationality and desirability of arms control in space, it says nothing for or against the political or scientific merits of space exploration in general, relative to other possible areas of endeavor and investment.

A study of arms control and outer space necessarily touches on a wide range of diverse subjects. Few of these can be developed systematically here, and it may well be that some readers will be disconcerted with the simplified and cursory treatment of topics such as space law and space technology. Nevertheless, the central theme of the book may constitute a kind of case study or a functional problem with relevance to a number of of separate concerns--the theory of arms control, the history of conflict and cooperation in East-West relations, the study of the interaction between domestic and foreign policy (in both the Soviet Union and the United States), the analysis of international bargaining, and the study of scientific-technological change and public policy.

Although Ambassador Stevenson's eloquent appraisal seems in retrospect to have overstated the progress made in the control of military-space technology, the impression remains that the major space powers have shown unusual restraint in deciding whether to escalate their military competition beyond the earth's atmosphere. No doubt economic costs and technological difficulties have played an important role. But it may also be true, perhaps only subconsciously, that the leaders of states long accustomed to driving frenetically for military and political power, have perceived that they are confronted with a novel opportunity and a great responsibility: the chance to preserve the heavens from the scourge of war and military competition, just as scientists seek to avoid polluting the planets with

terrestrial bacteria. Alternatively, if Moscow and Washington assume that man's competitive instincts will remain intense, they may also sense that competition in space may prove to be a practical realization of William James' call for a "moral equivalent" to war.<sup>1</sup>

However that may be, the prospect remains in 1966 that preventive arms controls may yet be established to deny some if not all military activities from outer space, and that international legal institutions may preserve outer space from being divided into heavenly colonies of nation-states. At a minimum it is hoped that this study will provide a survey of roughly the first decade of work toward these goals, a record infused, it would seem, with more promise than pessimism.

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<sup>1</sup>"Competition" in Russia may be rendered as konkurentsia or as sorevnovanie. The first term connotes competition in the sense of a zero-sum game: what one party wins, the other loses; the second term implies the friendly rivalry, say, of athletes. When Soviet spokesmen speak of "peaceful competition" between diverse social systems, they employ the second term.

## I. ATTEMPTS TO CURB ICBM'S, 1955-1960

While they could not predict its consequences in detail, Western and Soviet leaders recognized by the mid-1950's that the impending space age would revolutionize military strategy and world politics. Western governments took the lead in urging that a regime of preventive arms control be established for outer space. For several years before and after the first successful tests of an ICBM in 1957, proposals were advanced that would have curbed the deployment of medium- and long-range missiles. After such weapons had been emplaced in large numbers on land and sea, however, negotiations turned to other aspects of space arms control, in particular, as we shall see, in Chapter II, to the banning of bombs in orbit.<sup>1</sup>

### The Space Race and the Arms Race

The failure of efforts since 1945 to halt the accumulation of nuclear and thermonuclear weapons led by 1955 to what both Moscow and the West acknowledged to be a "clandestine weapon problem." Before long-range missiles were also procured in numbers beyond the capacity of effective control, Western statesmen suggested that agreement be reached denying the use of outer space to weapons of mass destruction.<sup>2</sup> This sentiment was echoed by Russian leaders. As we shall see, however, Moscow refused to limit Soviet space capabilities unless the West agreed to disband its overseas bases. Only through limitations on the assets of both sides, the Kremlin argued, could symmetry and security be achieved.

The negotiations naturally reflected the expectations of all parties regarding the technological-military balance--present and future. While U.S. statements endeavored to downgrade Soviet space achievements, and

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<sup>1</sup>The best general survey of negotiations from 1945-1960 is Bernard G. Bechhoefer, Postwar Negotiations for Arms Control (Washington: The Brookings Institution, 1961). The history of the 1954-1964 negotiations, with an emphasis on Soviet policy, is covered in Lincoln P. Bloomfield, Walter C. Clemens, Jr., Franklyn Griffiths, Khrushchev and the Arms Race: Soviet Interests in Arms Control and Disarmament, 1954-1964 (Cambridge, Mass.: The M.I.T. Press, 1966), where a bibliographical essay and bibliography may be found, pp. 291-323.

<sup>2</sup>See e.g., comments by Harold E. Stassen and Commander Allan H. P. Noble, United Nations Document DC/SC. 1/PV. 141 (July 25, 1957), pp. 4, 11; Henry Cabot Lodge, Documents on Disarmament, 1945-1959 (2 vols.; Washington: Government Printing Office, 1960), II, 901; President Eisenhower, ibid., II, 939; Secretary of State Dulles, ibid., II, 942.

although the Soviet initial lead does not appear in retrospect to have been so significant, both Moscow and the West seemed to believe that the Soviet Union would achieve a head start in long-range rocketry over the United States. A RAND Corporation report had forecast as early as 1946 that an earth satellite would "inflame the imagination of mankind," because space exploration provided an index of both military and scientific advancement.<sup>1</sup> But while the Soviet Union began an intensive and systematic rocket program in 1945, the United States did not give substantial support to missilery until 1951. Only in 1954-1955 did Washington assign high priority to development of intermediate- and long-range missiles--decisions spurred in part by intelligence reports on Soviet progress in this field.<sup>2</sup>

Already in 1954 world scientists meeting in Rome called for the construction of earth satellites for the International Geophysical Year (IGY) 1957. In 1955 both Moscow and Washington announced their willingness to build satellites. In April of that year the Soviet Union named a special commission of scientists to direct her satellite program. U.S. intelligence reports in November 1956 indicated the Soviet Union could put up a satellite any time after November 1957.<sup>3</sup> In June and September 1957, Moscow reiterated its intention to launch a satellite in connection with the IGY. The New York Times on October 1, 1957, carried on its front page an article headlined "Light May Flash in Soviet's 'Moon'"; but three days later, when the "moon" became a fact, public and governmental opinion in the West reacted with surprise.

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<sup>1</sup>"Preliminary Design of an Experimental World-Circling Spaceship," May 1946. See Vernon Van Dyke, Pride and Power: The Rationale of the Space Program (Urbana: University of Illinois Press, 1964), p. 12.

<sup>2</sup>Van Dyke, op. cit., pp. 10-11; for a criticism of the previous administration and a defense of U.S. space policy under his own, see Dwight D. Eisenhower, Waging Peace, 1956-1961 (Garden City, N.Y.: Doubleday & Company, Inc., 1965), pp. 204 passim; for a useful survey, see Lester A. Sobel (ed.), Space: From Sputnik to Gemini (New York: Facts on File, Inc., 1965).

<sup>3</sup>Eisenhower, op. cit., p. 206.

President Eisenhower recalled:

The size of the thrust required to propel a satellite of this weight came as a distinct surprise to us. There was no point in trying to minimize the accomplishment or the warning it gave that we must take added efforts to ensure maximum progress in missile and other scientific programs.<sup>1</sup>

The launching of artificial satellites from the Tyuratam Range in Kazakhstan on October 4 and November 3, 1957, made the Russian word sputnik (travelling companion) almost a household term in the West. But the military implications were the more significant in light of the announcement by TASS on August 26, 1957, that the Soviet Union had completed a successful test of an ICBM, and that no part of the world was any longer immune to attack. The U.S. Defense Department reported on August 30, 1957, that the Soviet Union had tested at least four and possibly six ICBM's in tests ending in June 1957.

President Eisenhower, however, in a news conference on September 3, 1957, expressed doubt that Moscow had developed an effective ICBM. He said missiles had to be produced "in sufficient numbers and sufficient reliability to be worthwhile tactically." He predicted that "for a long time the long-range missile is not going to provide the best means of delivering an explosive charge." In the same vein, Secretary Dulles stated on October 8 that Sputnik I represented "a good scientific achievement," but expressed doubt that it won Russia more than a propaganda advantage. It soon became public knowledge, however, that a report by the "Gaither Committee" to the National Security Council stressed the vulnerability of the United States in the face of Soviet missile advances. While President Eisenhower refused to disclose its precise contents at the time, he later wrote that the committee reported the Soviet Union had been producing ballistic missiles with a 700-mile range for over a year; and that by late 1959 the Soviet Union could possibly launch an attack against the United States with 100 ICBM's.<sup>2</sup>

The first U.S. attempt to launch an ICBM ended in failure on June 11, 1957, when an Atlas missile went out of control and had to be destroyed.

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<sup>1</sup>Ibid., p. 205.

<sup>2</sup>Ibid., p. 220-222.

On November 7, 1957, in the first of a series of nationwide talks on science and defense, the President conceded "the Soviets are quite likely ahead in some missile and special areas, and are obviously ahead of us in satellite development...." He asserted, however, that the "overall military strength of the Free World is distinctly greater than that of the Communist countries." More specifically, Eisenhower asserted the United States was "well ahead of the Soviets in the nuclear field both in quantity and in quality" and intended "to stay ahead." He claimed that U.S. test missiles had already travelled successfully more than 3,500 miles. The ring of U.S. bases around the Soviet Union made an intermediate-range missile, for some purposes, as good as an intercontinental one. Similar claims were reiterated by Deputy Secretary of Defense Donald A. Quarles on November 18. But the Administration took a series of measures designed to accelerate U.S. space and missile programs, managed, however, so as to have a "sound defense and a sound economy."<sup>1</sup>

#### Western Initiatives: Preventive Arms Control

Owing in part to Russia's anticipated lead in rocketry, the West took the initiative in attempting to limit the use of outer space for propulsion of military rockets from one part of the globe to another. The French engineer-diplomat Jules Moch seems to have been one of the first to express anxiety on this point in arms control negotiations. Significantly, this expression of concern coincided with two other developments: (1) the U.S. decision to assign a high priority to long-range rocketry; and (2) a major turning point in the history of the post-war negotiations: Moscow's disarmament proposals of May 10, 1955. The new Soviet position, Western diplomats admitted, went some distance toward acceptance of principles long advocated by the Western powers. Moch, however, challenged the underlying principle and the details of the Soviet proposal for "international control." Moscow's May 10 position advocated:

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<sup>1</sup>Ibid., pp. 224-225.

control posts at large ports, at railway junctions, on main motor highways and in aerodromes. The task of these posts shall be to see to it that there is no dangerous concentration of military land forces or of air or naval forces.

The International Control Organ would "have permanently in all states signatories to the convention its own staff of inspectors having, within the bounds of the control functions they exercise, unimpeded access at all times to all objects of control."

Moch countered that "fixed control is a necessary, but not a sufficient condition for security." The international inspectorate had to be free to survey the entire country, not just certain parts of it. A basic reason stressed by the British as well as the French delegate was that within two years-- i.e., by 1957 --control posts at airfields would be inadequate to prevent surprise attack by missiles and other modern delivery systems.<sup>1</sup>

In 1955 Soviet negotiators did not respond directly to Western arguments about the special significance of long-range missiles. An internal contradiction permeated the Russian proposal of May 10. On the one hand the Kremlin suggested a system of international control; on the other hand it stated that "there are possibilities beyond the reach of international control for evading this control and for organizing the clandestine manufacture of atomic and hydrogen weapons, even if there is a formal agreement on international control." How did Soviet diplomacy propose to overcome this dilemma? The Russian negotiators expressed the ostensible judgment of Soviet strategic doctrine: Even in conditions of modern warfare aggression cannot be effected by wonder weapons alone; aggression would still require concentrations and movement of large military formations "through important communication centers, ports and airfields."<sup>2</sup> Second, Moscow held, it was simply naive to demand absolute freedom for international inspectors. "The failure of all past attempts to solve the problem of control," Soviet delegate Sobolev argued, was "the consequence of an unrealistic approach... [which] did not take into account the present state of international relations."<sup>3</sup>

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<sup>1</sup>DC/SC.1/PV.57, pp. 20-21; PV.59, pp. 39ff.

<sup>2</sup>DC/SC.1/PV.47, pp. 25-34.

<sup>3</sup>DC/SC.1/PV.56, pp. 37-42.

The spirit of Geneva dissipated in 1955-1956 and arms control negotiations languished while the United States Government continued a reevaluation of its arms control policy that terminated only in November 1956. As Washington began what it called an "intensified effort" in 1957, U.S. spokesmen focused much of their attention upon safeguards against surprise attack and--one aspect of this problem--arms control in outer space.

Ambassador Lodge told the General Assembly in January 1957 that U.S. policy sought "to ensure that research and development activities concerning the propulsion of objects through outer space be devoted exclusively to scientific and peaceful purposes." The United States was concerned not only with "intercontinental missiles" and "long-range unmanned weapons," Lodge indicated, but also with "earth satellites" and "space platforms." As a first step to ensure that outer space would be used only for peace, Washington proposed that the testing of such objects be brought under "international inspection and participation" in "fair, balanced, reliable systems of control." These moves would be part of a progressive installation of inspection systems which would provide against the possibility of great surprise attack.<sup>1</sup> The same objectives were reiterated by Presidential Assistant Stassen at the Disarmament Subcommittee in March and by Secretary of State Dulles in a radio and television address in July 1957.<sup>2</sup>

The Soviet Union seemed to negotiate seriously on some aspects of arms control in 1957, particularly on the issue of a nuclear test ban. But Moscow's position on long-range rockets appeared designed to protect what both sides deemed to be a Soviet advantage. The Soviet proposals of March 18, 1957, provided for general disarmament in two stages, the first to be carried out in 1957-1958 and the second in 1959. No limitations would be placed on guided rockets until the second stage, when:

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<sup>1</sup>Documents on Disarmament, 1945-1959, II, pp. 733-734.

<sup>2</sup>U.N. Doc. DC/SC.1/PV.88 (March 19, 1957), p. 30; Documents on Disarmament, 1945-1959, II, p. 832.

Simultaneously with the elimination of atomic and hydrogen weapons...international control shall be instituted over guided rockets in order to ensure that all types of such rockets which are suitable for use as atomic and hydrogen weapons shall be used exclusively for peaceful purposes.<sup>1</sup>

In another proposal, directed primarily toward reduction of conventional forces, Moscow proposed on April 30, 1957 that states make a "solemn undertaking to renounce the use for military purposes of atomic and hydrogen weapons of all types, including aerial bombs, rockets carrying atomic and hydrogen warheads, irrespective of range, atomic artillery, etc."<sup>2</sup> Clearly, if the West wanted to thwart the threat of Soviet ICBM's, the Kremlin was also concerned to inhibit the bombs that could be dropped by the Strategic Air Command and the tactical nuclear weapons being introduced in NATO forces.

Detailed discussions of space arms control did not begin in the U.N. Disarmament Subcommittee until July 25, 1957, when the Western delegations suggested that a technical committee be established to study the design of an inspection system to ensure that the sending of objects through outer space would be exclusively for peaceful and scientific purposes.<sup>3</sup> Moscow countered by reiterating the relevant portions of the Soviet comprehensive disarmament proposals of March 18 and the April 30 proposal to renounce the use of all nuclear weapons including rockets.<sup>4</sup> But the West continued to advocate the creation of a technical committee and in August 1957 submitted a working paper calling for its establishment within three months.<sup>5</sup>

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<sup>1</sup>Documents on Disarmament, 1945-1959, II, p. 755.

<sup>2</sup>Ibid., II, p. 783.

<sup>3</sup>U.N. Doc. DC/SC.1/PV.141 (July 25, 1957), p. 4.

<sup>4</sup>U.N. Doc. DC/SC.1/PV.141 (July 25, 1957), pp. 15-16.

<sup>5</sup>August 29, 1957; see Documents on Disarmament, 1945-1959, II, p. 871.

### Soviet Rejoinders: The Need for a Quid Pro Quo

Moscow's diplomatic posture was enhanced by its successful testing of an ICBM and the launching of sputniks I and II in 1957. First Secretary Khrushchev stated on October 7 that the Soviet Government would be willing to subject earth satellites and unmanned missiles to international control under a U.S.-Soviet agreement. He told James Reston of The New York Times that there would be no difficulty over control of missiles or of any other modern weapons if the United States and Soviet Union agreed on peaceful coexistence. The fuller context of his remarks to Reston demonstrated, however, that Moscow would readily rattle its rockets for foreign policy objectives. Khrushchev accused the United States of trying to stir up war over Syria and declared Washington was seeking to get Turkey to launch an attack. In words aimed not only at Ankara, Khrushchev declared, "If the rifles fire, the rockets will start flying." The First Secretary stated that some U.S. statesmen did not believe initial reports about the successful Soviet testing of an ICBM. He went on:

Now that we have successfully launched an earth satellite, only technically ignorant people can doubt this. The U.S.A. has no intercontinental ballistic rocket, otherwise it would also have easily launched a satellite of its own.<sup>1</sup>

The following month Khrushchev boasted that the Soviet Union could launch as many satellites as it wished, and added: "It is only necessary to replace the hydrogen warhead [of an ICBM] with the necessary apparatus."<sup>2</sup>

The U.S. State Department immediately rebuffed Khrushchev's bid for bilateralism in space negotiations. Officials stated on October 8 that the United States would join "multilateral" space-missile control talks but would not participate in any "bilateral study" between Washington and Moscow. John Foster Dulles declared later in the day that the United States would be willing to cooperate with the Soviet Union in an international study of ways to control space missiles and satellites, but he too rejected the suggestion that they be controlled through bilateral agreement. He added that any U.S.-Soviet study of satellites should be undertaken outside

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<sup>1</sup>The New York Times, October 10, 1957; Pravda, October 11, 1957.

<sup>2</sup>Pravda, November 19, 1957, cited in Arnold L. Horelick, "The Soviet Union and the Political Uses of Outer Space," in Joseph M. Goldsen (ed.), Outer Space in World Politics (New York: Frederick A. Praeger, Publisher, 1963), p. 45.

the disarmament negotiations under way at the United Nations. The U.S. position was elaborated at the General Assembly when, two days later, along with other partial measures of disarmament, Ambassador Lodge reiterated the U.S. interest in establishing a technical committee to deal with space arms control.<sup>1</sup>

Overriding the negative vote of the Soviet bloc, a General Assembly on November 14 passed a resolution on disarmament generally endorsing positions favored by the West, including the project of a joint study of an inspection system to ensure that the propulsion of objects through outer space would be exclusively for peaceful and scientific purposes.<sup>2</sup>

The Soviet Union was denied parity with the United States and could be outvoted in the United Nations. But Moscow continued to take a forward negotiating posture, buttressed by the same events that led Mao Tse-tung to assert in 1957 that the "East wind is prevailing over the West wind." Thus, Premier Bulganin wrote to President Eisenhower on December 10, 1957, criticizing plans for "intensification of the military preparations of the NATO members." Bulganin's main concern seemed to be with tactical nuclear weapons and with Western theories of limited war. If the West persisted in stepping up the arms race, he warned, "who can guarantee...that it will be the NATO members who are the winners in such a competition?"

The Soviet Premier maintained that the step-up in NATO military planning was taking place in an

atmosphere of artificially created nervousness and fear with respect to the imaginary "threat" from the U.S.S.R., and, in the effort to create such an atmosphere, particularly wide use is being made of references to the latest scientific and technical achievements of the Soviet Union.

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<sup>1</sup>Documents on Disarmament, 1945-1959, II, p. 902.

<sup>2</sup>General Assembly Resolution 1148 (XII): Regulation, Limitation, and Balanced Reduction of all Armed Forces and Armaments; Conclusion of an International Convention (Treaty) on the Reduction of Armaments and the Prohibition of Atomic, Hydrogen, and other Weapons of Mass Destruction, November 14, 1957; passed by a vote of 56-9-15.

Bulganin cautioned:

I must frankly say to you, Mr. President, that the reaction of certain circles in your country and in certain other NATO countries regarding the recent accomplishments of the U.S.S.R. in the scientific and technical field, and regarding the launching, in connection with the program of the International Geophysical Year, of the Soviet artificial earth satellites in particular, appears to us to be a great mistake.

Bulganin conceded that "the launching of artificial earth satellites bears witness to the great achievement of the U.S.S.R., both in the field of peaceful scientific research and in the field of military technology."

At the same time he argued that

it is well known that the U.S.S.R. has insisted and still insists that neither ballistic missiles nor hydrogen and atomic bombs should ever be used for purposes of destruction, and that so great an achievement of the human mind as the discovery of atomic energy should be put to use entirely for the peaceful development of society.

The Soviet Union, Bulganin averred, "has no intention of attacking either the U.S.A. or any other country."<sup>1</sup>

Bulganin's letter proposed nothing regarding outer space, but it called for an agreement not to use nuclear weapons and the cessation, as of January 1, 1958, of all nuclear tests for a period of at least two or three years. Further, he proposed that Britain, the United States, and the Soviet Union refrain from stationing nuclear weapons in West or East Germany.<sup>2</sup>

Eisenhower's reply on January 12, 1958, turned down the suggestion for an atom-free Central Europe on several grounds, among them, the fact that, in Bulganin's own words, "the range of modern types of weapons does not know of any geographical limit." The President rather focused on what he said was a choice perhaps even more momentous than the decision a decade earlier as to whether atomic energy would be used for peaceful purposes only.

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<sup>1</sup> Documents on Disarmament, 1945-1959, II, pp. 919-920.

<sup>2</sup> Bulganin explicitly endorsed the Rapacki Plan for an atom-free area in Germany, Poland, and Czechoslovakia. Ibid., II, pp. 924-925.

The issue in 1958, he said, "relates to the use of outer space.... There are about to be perfected and produced powerful new weapons which, availing of outer space, will greatly increase the capacity of the human race to destroy itself." Eisenhower proposed that agreement be reached to use outer space for peaceful purposes only. He appealed for an end to the testing of missiles in outer space and for a halt in the production of "such weapons which would use or, more accurately, misuse, outer space..." More generally, the President called for a cessation of the production of all nuclear weapons.<sup>1</sup>

Eisenhower's message was developed further by Secretary Dulles at a news conference on January 16, 1958. Dulles called for an international agreement, to be inspected by the United Nations, to ensure that any object made for outer space would be for peaceful purposes rather than military. He denied that the United States was merely trying to stop the Russians' space program when they were ahead. In ten years the relative situation as of 1958 would be "quite unimportant." Although the Soviet Union currently led the United States in satellites, Dulles said, in missilery "the relative status of our arts is a good deal of an enigma."<sup>2</sup>

The Soviet Union in 1958 came to formulate more precisely the quid pro quo it would demand in exchange for limitations on its ICBM program. In a speech at Minsk on January 20, 1958, Khrushchev declared that the West would have to agree to ban nuclear weapons and nuclear tests, and dismantle its overseas bases before the Soviet Union would agree to discuss the peaceful uses of outer space.<sup>3</sup> A letter from Bulganin to Eisenhower on February 1 made the same point. In a letter to Bertrand Russell dated March 5, 1958, and published in the New Statesman, Khrushchev elucidated the Soviet position:

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<sup>1</sup>Ibid., II, pp. 938-939.

<sup>2</sup>Ibid., II, pp. 942-943.

<sup>3</sup>The New York Times, January 26, 1958, p. 3.

We agree to discuss the control of cosmic space-- which is in fact the question of intercontinental ballistic rockets. But it must be examined as part of the general disarmament problem, including the question of prohibiting nuclear weapons and winding up the U.S. military bases surrounding the Soviet Union.

Khrushchev explained that Moscow linked the question of overseas bases and the peaceful use of outer space. The Soviet Union

now possesses the means of combatting the United States of America, should the latter unleash war upon us. The Soviet Union also had these means before in the shape of intercontinental bombers, but the ballistic rocket is, of course, an improved weapon.

The United States, Khrushchev charged, wanted "the prohibition of the intercontinental ballistic rocket in order to put itself in a more advantageous position, should war break out."<sup>1</sup>

This logic was reflected in a major Soviet proposal submitted to the U.N. Secretary General on March 15, 1958, a document to which Soviet writers and spokesmen have returned many times (citing it in 1966 as the origin of the movement to demilitarize and neutralize outer space by international agreement). The document bore the cumbersome title: "On the Banning of the Use of Cosmic Space for Military Purposes, the Elimination of Foreign Military Bases on the Territories of Other Countries, and International Cooperation in the Study of Outer Space." The Soviet statement began by citing the need to outlaw nuclear weapons and direct science toward peace. It termed the joint studies being conducted under the International Geophysical Year programme "a wonderful example of international cooperation." As for President Eisenhower's proposal to ban ICBM's, however, Moscow found that he ignored "other highly important aspects of the problem." The United States hoped to rely upon the bombers and the short- and medium-range rockets already in its arsenal, many of which were to be supplied to U.S. military bases on foreign territories. Washington wanted to prohibit Soviet ICBM's which "could be used...only by way of retaliation against targets in the

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<sup>1</sup>Cited in Soviet Space Programs: Organization, Plans, Goals, and International Implications, Staff Report for the Use of the Committee on Aeronautical and Space Sciences, U.S. Senate, (Washington, D.C.: U.S. Government Printing Office, 1962), pp. 160-161.

territory of the United States...."

The Kremlin's statement continued:

One cannot fail to see that in raising the questions of banning the use of cosmic space for military purposes, the United States is making an attempt, through a ban of the intercontinental ballistic rockets, to ward off a retaliatory nuclear blow through cosmic space while maintaining its numerous military bases on foreign territories, intended for attacking the Soviet Union and the peaceful States friendly to it with nuclear weapons. Before the appearance of the intercontinental rocket, many persons in the United States had counted on American territory being relatively safe, believing that the whole weight of the retaliatory blow in case of war would fall on the allies of the United States on whose territories American military bases are situated.

#### A Role for the United Nations

The Soviet note of March 15, 1958 to the Secretary General set down four elements of what Moscow regarded as a balanced program of disarmament and international cooperation, the third and fourth aspects of which directly involved the United Nations:

1. A ban on the use of cosmic space for military purposes and an undertaking by States to launch rockets into cosmic space only under an agreed international programme.
2. The elimination of foreign military bases in the territories of other States, primarily in Europe, the Near and Middle East and North Africa.
3. The establishment within the framework of the United Nations of appropriate international control over the implementation of the obligations set forth in paragraphs 1 and 2 above.

A fourth provision called for the establishment of a U.N. agency for international cooperation in the study of cosmic law. It would have four functions: (a) to work out and supervise an agreed international programme for launching intercontinental and space rockets with the aim of studying cosmic space; (b) continue on a permanent basis the cosmic-space research being carried out within the framework of the International Geophysical Year; (c) serve as a world center for the collection, mutual exchange, and dissemination of information on cosmic research; (d) coordinate national research programs on space and help in their realization.

Moscow suggested that its proposal be discussed at a summit conference so as to "reach agreement, at least in principle." But the same document was also submitted simultaneously for consideration by the next U.N. General Assembly. The Kremlin promised that agreement on the key points of its proposal "would break the disarmament deadlock...promote an easing of international tension...and the development of broad international cooperation...."<sup>1</sup>

The essential points of the Soviet proposal of March 15, 1958 were reiterated by Khrushchev in a letter to Eisenhower on April 22; in a Soviet memorandum of May 5 entitled "Proposals as to Questions to Be Considered at the Conference with Participation of the Heads of Government"; a declaration by Khrushchev at the Warsaw Pact meeting of May 24; in a nine-point list of measures in the field of disarmament transmitted to the General Assembly on September 9; and in a draft resolution advanced by Moscow at the United Nations on November 7, 1958.

Articles supporting the March 15 Soviet initiative appeared in the major Soviet law journal in July and in Izvestiia in September 1958.<sup>2</sup> The latter article spelled out further the rationale for Soviet insistence on the simultaneous liquidation of overseas bases and the banning of cosmic space for military purposes. Even short- and medium-range rockets, the article said, "can leave the limits of the earth's atmosphere and fly through cosmic space. The liquidation of military bases will create, consequently, an additional guarantee that cosmic space will not be used for military purposes ...." Thus, the peaceful character of shorter range as well as of intercontinental rockets would be assured.

The Soviet Union reacted defensively to U.S. initiatives in outer space. Early in September 1958, Ambassador Lodge submitted a memorandum requesting the General Assembly to declare itself on "the separability of the question

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<sup>1</sup>Documents on Disarmament, 1945-1959, II, pp. 973-977.

<sup>2</sup>A. Galina, "On the Question of Interplanetary Law," Sovetskoe Gosudarstvo i Pravo, No. 7 (July 1958), pp. 52-58; A. Galina, "For Equal Collaboration in the Peaceful Use of Cosmic Space," Izvestiia, September 17, 1958, p. 5.

of the peaceful uses of outer space from that of disarmament."<sup>1</sup> The Izvestia commentary on September 17 declared that the American plan was "barren of the main condition of international collaboration stemming from the basic principle of international law, namely, the principle of equal and mutual benefit." The article concluded by quoting Khrushchev's response to a suggestion that Moscow share information with the United States on its rocket launchers:

The Soviet Union is ready to share information with the U.S.A. in this area, to show, yes, and not only to show, but at the same time to sink in the sea all ballistic rockets, in order to secure firm and lasting peace....But all of this under conditions of disarmament...of peaceful competition...of peaceful coexistence for all countries....

The United States and nineteen other countries followed on November 13, 1958, by submitting a draft resolution at the United Nations calling for the establishment of a committee to study the peaceful uses of outer space.<sup>2</sup> Already on November 7 the Soviet Union had put forward a draft resolution reproducing the four key points of the Soviet proposal of March 15. On November 18, however, the Soviet Union dropped its insistence that peaceful uses of space had to be conditioned on terrestrial disarmament. Moscow introduced a resolution omitting the first three points of its March 15 proposal--those having to do with arms control in space and on earth--but calling for the establishment of an International Committee for Cooperation in the Study of Cosmic Space for Peaceful Purposes, the fourth element in the proposal of March 15. The November 18 draft resolution, however, omitted a key function suggested in March: that the committee work out and supervise an agreed international programme for launching intercontinental and space rockets. Instead the November 18 document provided only the coordinating activities suggested for the U.N. agency in the March 15 proposal.<sup>3</sup>

The partial convergence of the Soviet and Western positions, however, did not lead even to a working relationship, for the Soviet Union insisted

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<sup>1</sup>The Christian Science Monitor, September 3, 1958, p. 3.

<sup>2</sup>U.N. Doc. A/C.1/L.220.

<sup>3</sup>Documents on Disarmament, 1945-1959, II, pp. 1228-1230.

that the U.N. space committee be composed of four Soviet-bloc and four Western countries and three "neutral" states, while the West held out for other criteria. The General Assembly finally passed a resolution on December 13, 1958, establishing an ad hoc Committee on the Peaceful Uses of Outer Space.<sup>1</sup> Eighteen states were to be represented, including the U.S.S.R., Poland, and Czechoslovakia. But the Soviet bloc voted against the resolution and proceeded to boycott the committee when it convened, as did two of its other members, India and the United Arab Republic.

A year later, following Khrushchev's visit to the United States, the Soviet Union agreed to a General Assembly resolution establishing a permanent Committee on the Peaceful Uses of Outer Space.<sup>2</sup> Twelve member-nations belonged to the anti-Communist alliances; seven adhered to the Soviet bloc; and five were nonaligned. Almost two years passed, however, before the Soviet Union agreed to attend a meeting of the committee, for Moscow still contended that the panel was weighted in favor of the West. When the committee finally met on November 27, 1961, the Soviet delegate demanded that equal representation be given to Communist, Western, and neutral countries. A compromise resolution on the work and structure of the committee was passed unanimously by the General Assembly on December 20, 1961, and the Committee on the Peaceful Uses of Outer Space proceeded to meet in mid-March 1962.<sup>3</sup>

Thus, the operation of a special U.N. committee to deal with peaceful uses of outer space foundered from 1958 to 1962 on procedural and constitutional issues. This impasse did not however prevent individual nations from raising the issues of outer space and arms control in other negotiating forums. The United States, for example, persisted in September 1959 in efforts to separate the peaceful uses of outer space from the broader problems of disarmament.<sup>4</sup> The Soviet Union, however, in Khrushchev's address to the United Nations on September 18, 1959, came

<sup>1</sup>Documents on Disarmament, 1945-1959, II, pp. 1304-1305.

<sup>2</sup>U.N. Doc. A/Res. 1472 (XIV), December 17, 1959.

<sup>3</sup>See Soviet Space Programs, pp. 167-169.

<sup>4</sup>Documents on Disarmament, 1945-1959, II, p. 1446.

down for general and complete disarmament. The new Soviet proposal offered no special provisions on outer space except to stipulate that all nuclear weapons and missiles would be destroyed in the third stage of the program (while overseas bases would be eliminated in the second stage, a sequence less generous to the West than previous Russian schemes).<sup>1</sup>

#### Khrushchev in America: Moonlighting

Khrushchev's disarmament speech at the United Nations was one of the highlights of his U.S. tour which gave rise to what was briefly known as the "spirit of Camp David." The Soviet leader's arrival in Washington came immediately after Russia's second lunar rocket, Lunik II, impacted on the moon on September 12, 1959. Khrushchev presented Eisenhower with a replica of the metal Soviet pennant that had been placed in the Lunik payload. His speech at the Washington airport on September 15 offered a curious mixture of upmanship, implicit threats, and outstretched hand. He began by assuring that his delegation came "with open heart and good intentions," and that the Soviet people desired "to live in peace and friendship with the American people." But he went on:

Before our visit with you, Mr. President, Soviet scientists, engineers, technologists, and workers gladdened us by the sending of a rocket to the moon. Thus, a road has been laid from the earth to the moon, and a container weighing 390 kilograms with a pennant, on which is inscribed the coat of arms of the Soviet Union, is now located on the moon. Our earth has become somewhat lighter, and the moon has become some hundred kilograms heavier. I am sure that this historical accomplishment of Soviet peaceful science gladdens not only the Soviet people, but all those to whom peace and friendship between peoples are dear....

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<sup>1</sup>Ibid., II, p. 1472. The United Kingdom's proposal made one day before Khrushchev's envisioned that in stage II there would be "agreement on a system to ensure the use of outer space for peaceful purposes," but put off to stage III a "ban on the use of outer space for military purposes." Ibid., II, p. 1451.

Khrushchev did not avoid condescension:

We don't doubt that the remarkable scientists, engineers, and workers of the U.S.A. who work in the conquest of space will also place their pennant on the moon. The Soviet pennant as an old inhabitant of the moon will greet your pennant, and they will live in peace and friendship, as must live in peace and friendship all peoples living on our common mother earth who so generously rewards us with her gifts.<sup>1</sup>

The following day, September 16, Khrushchev jokingly parried a question at a press conference as to whether it had been a coincidence that a Soviet moon hit the moon on the eve of his trip to the United States. Replied Khrushchev, "That is a simple, but I would say, a pleasant coincidence." He denied, however, that the Soviet Union would make any claim to the moon. The idea of such a claim could arise from a capitalist but not a socialist mentality, the Soviet leader declared. The U.S.S.R. regarded the landing on the moon as "our conquest," he continued, but maintained that by "this 'our' we understand the countries of the whole world; that is, we understand this as your accomplishment and the accomplishment of all people living on earth."<sup>2</sup>

Although Khrushchev made much of the Soviet space program during his U.S. trip, he spoke only once of missiles, and then to warn of the consequences should the United States reject peaceful coexistence and persist in cold war:

If you are not ready for disarmament and want to go on with the arms race, we accept that challenge, for we now have the necessary strength and all the possibilities to create modern weapons, as for the output of our rockets, they are on the assembly line.<sup>3</sup>

The Soviet legal authority E. A. Korovin commented on Khrushchev's disarmament proposal in an article "On the Neutralization and Demilitarization of Outer Space" published in December 1959. Korovin maintained that the Soviet GCD plan accorde<sup>d</sup> with "the principles of socialistic humanism."

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<sup>1</sup>Khrushchev also noted that the U.S.S.R. had recently begun construction of an atomic ice-breaker. He stated: "We know, Mr. President, that the idea of the peaceful use of atomic energy is close to your heart, and note with pleasure, that in this area your goals correspond with ours." Mir bez oruzhiia--mir bez vojn (2 vols.; Moscow: Gospolitizdat, 1960), II, pp. 85-86.

<sup>2</sup>Ibid., II, pp. 98-99.

<sup>3</sup>The New York Times, September 21, 1959. See also Arnold Horelick and Myron Rush, Strategic Power and Soviet Foreign Policy (Chicago: University of Chicago Press, 1966), pp. 56-57.

American proposals for prohibiting the military use of outer space, however, were said to "aim not at disarmament, but at a redistribution of armaments, moreover, one that is unilaterally advantageous for countries that do not have long-range rockets." Korovin wrote that it was "not the space rocket as such that endangers the security of mankind, but the nuclear warhead which may be delivered by a space rocket, a rocket of any possible range, a military aircraft, etc." For these reasons, he concluded, banning "the use of military space rockets must coincide in time with the dismantling of military bases in foreign countries and the banning of atomic weapons."<sup>1</sup>

By 1960 the event Western officials purported to fear in the mid and late 1950's had come to pass: Both sides had begun not only to produce but to deploy intercontinental ballistic missiles. Faced with an accomplished fact, Western arms control proposals now shifted to another area in which strategic deployment might still be avoided: the orbiting of weapons of mass destruction.

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<sup>1</sup>International Affairs (Moscow), December 1959, pp. 82-83. Korovin's conclusion seemed not to take into account the fact that Khrushchev's proposal placed the liquidation of overseas bases prior to the destruction of atomic weapons and military rockets.

## II. GCD AND BOMBS IN ORBIT, 1960-1962

As ICBM's became an operational part of each superpower's inventory, Western negotiators took the lead in proposing another kind of preventive arms control: a ban on the orbiting of weapons of mass destruction. Again they recalled the moral of atomic spread: action should be taken before such weapons come into being and proliferate so widely as to preclude effective control. The West continued to urge that outer space be used exclusively for peaceful purposes, but the emphasis shifted to the specific measure that seemed most feasible: the prohibition of bombs in orbit.

### The 1960 GCD Plans: First Stage Controls vs. First Stage Destruction

The first Western proposals for a ban on bombs in orbit came in early 1960. Newspaper reports indicated the West hoped that agreement might be reached on this measure prior to the summit meeting scheduled for Paris in May 1960.<sup>1</sup> Whether this hope was seriously entertained or whether it was leaked to the press in order to embarrass the Russians is uncertain, for a negative Communist reaction was predictable.

Although the Western negotiators ostensibly hoped for an agreement on outer space as a separate measure,<sup>2</sup> their proposals were embodied in the framework of a plan for general and complete disarmament (GCD) which the five Western nations presented to the Ten-Nation Committee on Disarmament on March 16, 1960.<sup>3</sup> Britain's David Ormsby-Gore explained the preventive arms control rationale:

Today it is unquestionably possible to put very large weights, which could embrace nuclear weapons, into orbit around the world. It is not yet possible to bring them back to earth at a precisely selected spot.

He warned that the pace of scientific development might soon master the problems involved in deorbiting such a weapon.

Then we shall have reached a point of no return. We passed one such point in 1947 when we missed the golden opportunity to ensure that nuclear energy was not used for any but peaceful purposes.

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<sup>1</sup>The New York Times, March 17, 1960, pp. 1, 3.

<sup>2</sup>Ibid.

<sup>3</sup>Text in Verbatim Records of the Meetings of the Ten-Power Disarmament Committee (London: Her Majesty's Stationery Office, Cmd. 1152, Miscellaneous No. 10, 1960) pp. 921-923.

If agreement could be reached to ensure that nuclear weapons are never put into orbit, then, "even when the scientists devise the means of bringing orbiting bodies back to a predetermined point on the earth, the fact need cause us no alarm."<sup>1</sup>

The Western GCD plan called for eight joint study projects to be "undertaken immediately," the first two having to do with outer space. Measures were to be studied that would assure

compliance with an agreement that no nation shall place into orbit or station in outer space weapons of mass destruction, including provision for on-site inspection.

And second:

compliance with an agreement on prior notification of missile launchings, according to predetermined and mutually agreed criteria, and on declarations to the International Disarmament Organization of locations of launching sites, and places of manufacture, of such missiles.

Upon "successful completion" of the relevant preparatory studies, the following measures were to be undertaken "as rapidly as possible":

A. The prohibition against placing into orbit or stationing in outer space vehicles capable of mass destruction to be effective immediately after the installation and effective operation of an agreed control system to verify this measure.

B. Prior notification to the International Disarmament Organization of proposed launchings of missiles according to predetermined and mutually agreed criteria, and declarations of locations of launching sites, and places of manufacture of such missiles, with agreed verification including on-site inspection of launching sites and of such missiles.

As an "ultimate goal," to be achieved in a later stage, the Western plan stipulated the need for "measures to ensure the use of outer space for peaceful purposes only."<sup>2</sup>

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<sup>1</sup>Ibid., p. 34.

<sup>2</sup>Documents on Disarmament, 1960 (Washington: Government Printing Office, 1961), pp. 69-71; for an explanation of how these measures fit into the larger GCD sequence, see Verbatim Records of the Ten-Power Disarmament Committee, pp. 28-33.

Thus, the first of the two measures proposed by the West represented a new twist in space arms control: a prohibition against placing weapons of mass destruction in orbit or on celestial bodies. The second measure, prior notification of missile launchings, seemed directed against military rockets, whether or not they would go into orbit or fly directly to some target. In both cases the underlying principle of "inspection first, disarmament later" could hardly have been expected to be acceptable to Moscow.

The New York Times reported that outside the conference room, Communist comment on the plan was along these lines:

The West keeps insisting that it wants to maintain the balance of power at every disarmament stage. But it proposes quick action in the space field, where the Russians believe they have the preponderance of power because they can thrust heavier weights into space than can the West. The Western proposal would shift the balance of power unless it were accompanied by offers where the West feels strong.<sup>1</sup>

Some Western sources, however, doubted whether the Soviets were so confident as they appeared. Some held that "the Russians could put greater weight into space than the United States but...the United States might be ahead in the second part of the problem--the instrumentation needed to guide a bomb from space to a target."<sup>2</sup>

In retrospect it seems likely that the most obnoxious feature of the Western proposals for Moscow was their salient emphasis on on-site inspection of launching sites prior to measures for the substantial reduction of nuclear or conventional armaments. Since 1955 Moscow had rejected Western proposals for "open skies" unless they were enacted parallel with or even subsequent to actual disarmament. (Overflights of Soviet territory by U-2 reconnaissance planes for several years prior to the May 1960 summit meeting had already helped to demonstrate the West's interest in strategic intelligence regarding Soviet missile production and deployment.)

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<sup>1</sup>The New York Times, March 19, 1960, pp. 1-2.

<sup>2</sup>Ibid., p. 2.

The Soviet counterproposal was put before the Ten-Nation Committee on June 7 (following the collapse of the Paris summit meeting).<sup>1</sup> Earlier the five Communist nations on the Committee had merely endorsed the Soviet proposal of September 1959 calling for the destruction of all nuclear weapons and missiles in the third stage of general disarmament.<sup>2</sup> Now, ostensibly in response to Western views, the Communist-bloc called for total nuclear disarmament in the first stage. While this change in the timing of disarmament accorded with French preferences, it was unacceptable to Washington or London. As the U.S. delegation later put it, "the Soviet proposal would have required the free world to commit itself as a first step to destroy within a matter of months its essential means of collective self-defense."<sup>3</sup>

In stage I of GCD Moscow now proposed that:

All means of delivering nuclear weapons will be eliminated...their manufacture will be discontinued and they will be destroyed. Such means include:

--strategic and tactical rockets, pilotless aircraft of all types, and all military aircraft capable of delivering nuclear weapons.

Surface ships, submarines, and artillery "as well as all other means" capable of being used as delivery systems for nuclear warheads were also included.

Second, the Soviet plan provided for the withdrawal of all foreign troops and the liquidation of all foreign bases.

Third:

From the very beginning of the first stage and until the final destruction of all means of delivering nuclear weapons, the placing into orbit or stationing in outer space of any special devices, the leaving of their territorial waters by warships and the flying beyond the limits of their national territory by military aircraft capable of carrying weapons of mass destruction, will be prohibited.

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<sup>1</sup>The Soviet proposal had been circulated to heads of state on June 2, 1960. See Documents on Disarmament, 1960, pp. 107-108.

<sup>2</sup>See the statement of "Basic Principles" submitted by the Communist delegation on April 8, 1960, Verbatim Records of the Meetings of the Ten-Power Disarmament Committee, pp. 923-924.

<sup>3</sup>Official Report of the United States Delegation to the Conference of the Ten-Nation Committee on Disarmament, U.S. Department of State Press Release, August 5, 1960, No. 430, p. 6.

Fourth:

The launching of rockets will be carried out exclusively for peaceful purposes and in accordance with predetermined and mutually agreed criteria, and will be accompanied by agreed measures of verification, including inspection at the launching sites.

As a seventh step:

...launching sites, with the exception of those maintained for peaceful purposes, will be destroyed under the supervision of the international control organization.

Further:

International inspection teams dispatched by the control organization will have the right to carry out a thorough examination of rocket devices to be launched for peaceful purposes, and to be present at their launching.

The first stage was to be completed within one to one and one-half years.

Thus, Moscow shifted the elimination of strategic delivery vehicles from the third to the first stage of general disarmament, and with it, measures to ensure that outer space would be used exclusively for peaceful purposes. The change of sequence was not however very helpful from the United States standpoint. Arms control in outer space was too important a matter to defer until the third stage of disarmament, but it was also too urgent to hinge upon agreement on a system of GCD that destroyed all strategic delivery vehicles in stage I. Like the nuclear test ban, arms control in outer space was a measure that warranted separate and immediate attention, apart from the idyllic day when general disarmament would commence. The revised Soviet GCD proposal of June 1960 was notable for the extensive on-site controls it gave to the international inspectorate. But if no agreement were attained on the sweeping measures proposed by Moscow, limited arms controls on outer space and other areas would be foreclosed or by-passed.

A revised U.S. proposal submitted on June 27, 1960, again called in the first stage of GCD for a prohibition of the placing into orbit or stationing in outer space of vehicles carrying weapons of mass destruction. The proposal differed little from the Western proposal of March 16, except that it called for some strategic arms limitations in stage I. Actual reductions of strategic delivery vehicles would not take place until

stages I and II, but some agreed quantities of such weapons would be stored on states territory under IDCO supervision in stage I.<sup>1</sup>

President Eisenhower attempted in September 1960 to create some momentum toward dealing with outer space as a separate measure of arms control. Addressing the U.N. General Assembly he noted that agreement had been reached in 1959 to declare the continent of Antarctica "off limits" to military preparations. "We could extend this principle to an even more important sphere," the President stated. And he endorsed again the idea of preventive arms control: "National vested interests have not yet been developed in space or in celestial bodies. Barriers to agreement are now lower than they will ever be again."

Before the "point of no return" had been passed, the President proposed agreement on four points:

1. that celestial bodies are not subject to national appropriation by any claims of sovereignty.
2. that the nations of the world shall not engage in warlike activities on these bodies.
3. that--subject to appropriate verification--no nation will put into orbit or station in outer space weapons of mass destruction. All launchings of space craft should be verified in advance by the United Nations.
4. that international cooperation should take place in the peaceful uses of outer space--meteorology, communications, and exploration--under the United Nations.<sup>2</sup>

The Soviet Union, however, seemed to take an increasingly intransigent position in arms control negotiations in 1960-1962. This stance, it has been argued,<sup>3</sup> was primarily the result of Moscow's fear that a reverse missile gap was being created that would weaken the strong diplomatic bargaining position the Kremlin enjoyed since Sputniks I and II in 1957.

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<sup>1</sup>Documents on Disarmament, 1960, pp. 129-131.

<sup>2</sup>Documents on Disarmament, 1960, pp. 225-226. The President's basic theses were reiterated by Ambassador Wadsworth at the Geneva Conference of Nuclear Weapons Tests on October 19. Ibid., pp. 321-322. Canada's Prime Minister Diefenbaker added to Eisenhower's message to the United Nations that frequencies for communications with space vehicles should be allocated on the basis of rational and agreed bases. Address to the General Assembly on September 26, 1960, ibid., p. 250.

<sup>3</sup>Bloomfield, Clemens, Griffiths, op.cit.

Hence, the Soviet Union broke off test ban negotiations in 1961 and resumed nuclear testing in order to explode warheads several times larger than any tested by the West. Although U.S. strategists generally argued that such warheads were not more useful than larger numbers of smaller bombs, the Kremlin seemed to use the tests as part of a campaign to redress the psychological balance of terror in favor of Soviet strategic power. On the other hand, although Moscow showed little interest in specific and limited arms control measures in 1960-1962, it continued to argue, contra Peking, the utility of general disarmament as a way of disarming imperialism, boosting economic progress, ensuring peace, and promoting wars of national liberation. Thus, in June 1960 the five Communist nations walked out of the Ten-Nation Disarmament Committee, but Moscow reiterated its GCD proposal at the General Assembly in September, quoting Lenin out of context as saying that "disarmament is the ideal of socialism," and criticizing the West's proposal for seeking "control without disarmament."<sup>1</sup>

#### The New Frontier and Outer Space

There was both continuity and change in U.S. policy toward outer space as the Kennedy administration replaced General Eisenhower's in 1961. The new government in Washington attempted to counter the challenge of the Soviet space program on three distinct levels. First, it determined to make a massive investment to give the United States "a clearly leading role in space achievement, which in so many ways may hold the key to our future on earth." In a May 25, 1961, address to the Congress on "urgent national needs" the President said the United States would place a man on the moon before the end of the decade.

Recognizing the head start obtained by the Soviets with their large rocket engines, which gives them many months of lead time and recognizing the likelihood that they will exploit this lead for some time to come in still more impressive successes, we nevertheless are required to make new efforts on our own. For while we cannot guarantee that we shall one day be first, we can guarantee that any failure to make this effort will make us last.<sup>2</sup>

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<sup>1</sup>Documents on Disarmament, 1960, pp. 231, 244.

<sup>2</sup>Documents on Disarmament, 1961 (Washington: Government Printing Office, 1962), pp. 158-159.

The main break with the Eisenhower administration was "quantitative," but it had qualitative importance. The space budget was increased by 50 percent in 1961, and the following year it exceeded all the pre-1961 space budgets combined.<sup>1</sup>

On a second level, the President invited the Soviet Union to joint cooperative programs in outer space. His initial State of the Union address affirmed his intent to "explore all possible areas of cooperation with the Soviet Union and other nations 'to invoke the wonders of science instead of its terrors'." Kennedy went on:

Today this country is ahead in the science and technology of space, while the Soviet Union is ahead in the capacity to lift large vehicles into orbit. Both nations would help themselves as well as other nations by removing these endeavors from the bitter and wasteful competition of the cold war.

The President invited all nations including the Soviet Union to join the United States in cooperative programs for weather prediction, satellite communications, and probes of distant planets, and to share this knowledge so as to improve farm technology, wipe out disease, and increase scientific cooperation throughout the world.<sup>2</sup>

At the June 1961 meeting with Chairman Khrushchev in Vienna, President Kennedy offered a suggestion more radical than any previously proposed by the United States. He raised the question of a joint U.S.-Soviet expedition to the moon. Khrushchev replied that the United States could better afford to go to the moon first and then the Soviet Union would follow. In any event the Soviet leader dismissed the importance of scientific coordination on launchings which, in his view, were undertaken primarily for prestige. Furthermore, he added, cooperation was impossible because Russia did not want her rockets observed.<sup>3</sup>

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<sup>1</sup>Theodore C. Sorensen, Kennedy (New York: Harper & Row, 1965), p. 526.

<sup>2</sup>State of the Union Address, January 30, 1961, in Documents on Disarmament, 1961, pp. 19-20.

<sup>3</sup>Sorensen, op. cit., pp. 527-529; see also Alton Frye, "The Proposal for a Joint Lunar Expedition: Background and Prospects," Santa Monica, Calif.: The RAND Corporation.

In the same vein, Khrushchev told Cyrus Sulzberger of The New York Times in September 1961 that the United States had made a "sensible proposal" in suggesting that "an international agency be set up for cooperation in space exploration." But in practice, Khrushchev continued, it would be impossible to implement the U.S. proposal without reaching an agreement on disarmament.

The thing is that exploration of space is inseparable from the use of intercontinental ballistic missiles. If we accept real cooperation in the study of outer space we shall have to disclose the secrets of the production and working of rockets. But no country will agree to this if its security is not guaranteed, and such guarantees can be obtained only through an agreement on disarmament....Let us hope that we come to such a reasonable solution.<sup>1</sup>

The third level on which the Kennedy administration attempted to deal with the problems of outer space was by continuing the efforts begun under President Eisenhower to establish a ban on the deployment in space of weapons of mass destruction. In a major speech to the U.N. General Assembly on September 25, 1961, Kennedy called for the extension of the rule of law "to man's new domain--outer space." He saluted the "brave cosmonauts of the Soviet Union" and declared that outer space must not become an arena of the cold war. To this end, he said,

We shall urge proposals extending the United Nations Charter to the limits of man's exploration in the universe, reserving outer space for peaceful use, prohibiting weapons of mass destruction in space or on celestial bodies, and opening the mysteries and benefits of space to every nation.

He also reiterated the United States' intention to propose cooperative efforts in weather prediction and satellite communication.<sup>2</sup>

On the same day the United States submitted a substantially revised version of her proposal for general and complete disarmament. It provided for more actual disarmament in its first and second stages than the U.S. proposal of March 1960. As for outer space, the objectives to be achieved remained essentially unchanged:

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<sup>1</sup>The New York Times, September 8, 1961, p. 11.

<sup>2</sup>Documents on Disarmament, 1961, pp. 470-471.

The placing into orbit or stationing in outer space of weapons capable of producing mass destruction shall be prohibited. States shall give advance notification to participating States and to the IDO [International Disarmament Organization] of launchings of space vehicles and missiles, together with the track of the vehicle.

The means by which these goals would be monitored, however, were not spelled out as in 1960, when the ban on space weapons was to be preceded and accompanied by on-site inspection of missile launchers. The control features of the September 1961 proposal were rather discussed in a separate chapter dealing with the International Disarmament Organization, which was to

provide for the establishment of such bodies as may be necessary for working out the details of further measures provided for in the programme and for such other expert study groups as may be required<sup>1</sup> to give continuous study to the problems of disarmament.

Thus, the possibility existed that the United States might relax her inspection requirements for space arms controls. But it was impossible to determine whether only the wording or the substance of the U.S. position had altered.

#### Limited Accords and Power Politics

Despite the generally dim auguries for arms control inherent in Moscow's resumption of nuclear tests, the United States and Soviet Union announced on September 20, 1961 a "Joint Statement of Agreed Principles for Disarmament Negotiations." Among these principles was a provision for the "elimination of all means of delivery of mass destruction"--a stipulation that clearly included high-powered military rockets. Another agreed principle was that the IDO and its inspectors "should be assured unrestricted access without veto to all places as necessary for the purpose of effective verification." An exchange of letters issued the same day, however, put the Soviet Union on record as "resolutely opposed to the establishment of control over armaments."<sup>2</sup>

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<sup>1</sup>Ibid., pp. 477-479.

<sup>2</sup>Documents on Disarmament, 1961, pp. 441, 443.

A second area of general U.S.-Soviet agreement emerged after Moscow, on November 27, 1961, ended its boycott of the U.N. Committee on the Peaceful Uses of Outer Space. Soviet diplomats continued to complain that the committee's composition was skewed to favor the West, but a series of U.S.-Soviet consultations in December 1961 resulted in agreement on adding several states to the committee membership. More important, it produced agreement on a draft resolution on international cooperation in space which embodied most of the measures suggested by U.S. spokesmen in November and December 1961,<sup>1</sup> and some adumbrated in the Soviet proposal of March 15, 1958.<sup>2</sup> The Soviet bloc then joined the rest of the General Assembly in unanimously endorsing this resolution on December 20, 1961. The document declared that the General Assembly

1. (Calls upon) States launching objects into orbit or beyond to furnish information promptly to the Committee on the Peaceful Uses of Outer Space, through the Secretary-General, for the registration of launchings;

2. Requests the Secretary-General to maintain a public registry of information furnished in accordance with paragraph 1 above....

It is also commended to states "for their guidance in the exploration" of outer space the following principles:

(a) International law, including the Charter of the United Nations, applies to outer space and celestial bodies;

(b) Outer space and celestial bodies are free for exploration and use by all states in conformity with international law and are not subject to national appropriation....<sup>3</sup>

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<sup>1</sup>Soviet Space Programs: Organization, Plans, Goals, and International Implications, Staff Report prepared for the Use of the Committee on Aeronautical and Space Sciences, U.S. Senate (Washington: Government Printing Office, 1962), pp. 166-167.

<sup>2</sup>See above, Chapter I. For an excellent survey, see Lincoln P. Bloomfield, "Outer Space and International Cooperation," International Organization, XIX, No. 3 (1965), pp. 603-621, esp. 609-613.

<sup>3</sup>U.N. Resolution 1721 (XVI), Documents on Disarmament, 1961, pp. 738-741. The resolution also declared that the United Nations should provide a "focal point" for international cooperation in the peaceful uses of outer space. It invited the U.N. Outer Space Committee to "study and report on the legal problems which may arise from the exploration and use of outer space." And it called for an exchange of information on meteorology and communications satellites, to be channeled through the U.N. Secretariat in cooperation with the World Meteorological Organization, UNESCO, the International Telecommunication Union, and other international bodies.

The principle of registering space launchings had been suggested in U.S. disarmament proposals since 1960. And there was a suggestion in the March 1958 Soviet proposal for "an agreed international program for launching intercontinental and space rockets," to be supervised by the United Nations. The 1961 General Assembly resolution, unlike the Soviet proposals to that time, called for notification apart from the realization of any arms control measures. Moscow's attitude toward this measure became somewhat clearer in March 1962 when Soviet delegate Morozov told the U.N. Outer Space Committee that the Soviet Union would submit reports to the United Nations on satellites and rockets "on the basis of mutuality."<sup>1</sup> On March 26 the Soviet Union submitted information on sixteen space flights, including those of Gagarin and Titov, for inclusion in the U.N. public registry.<sup>2</sup> But Western officials have frequently expressed disappointment over the omissions, delays, and paucity of information transmitted in subsequent Soviet reports.<sup>3</sup>

Thus, the first aspect of President Kennedy's three-pronged approach to the problems of outer space seemed to bear fruit. The intensification of the U.S. space efforts seemed to spur Soviet interest in some cooperative projects. Sorensen has written that "it was not until after the orbital flight of John Glenn [February 20, 1962] that the Soviet Union for the first time showed any interest in space cooperation."<sup>4</sup> True, in May 1961 Premier Khrushchev, upon receiving Kennedy's congratulatory

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<sup>1</sup>The New York Times, March 21, 1962, p. 8. Already in 1957 and 1960 Soviet representatives to meetings of the International Geophysical Year and the International Council of Scientific Unions had participated in resolutions recommending that states make detailed reports on spaceship launchings. See Richard W. Porter, "A Comparison of the United States and Soviet Space Programs," paper presented to seminar on Soviet space activities held by George Washington University, Washington, D.C., March 30, 1965, mimeo., 3-5. On April 10, 1962, a directive of the U.S. Department of Defense made information on all military satellites classified. (The New York Times, April 18, 1962, p. 14.) The Air Force gave little or no information on the satellites it launched on February 27 and April 17, 1962.

<sup>2</sup>The New York Times, March 27, 1962, p. 11.

<sup>3</sup>Porter, loc. cit.

<sup>4</sup>Sorensen, op. cit., p. 528.

message on the first Soviet manned flight, had replied to the President stating:

Like you I hope the U.S.S.R. and the United States of America will work together in conquering space, regarding this as part of the great task of establishing a world without arms.<sup>1</sup>

But in February 1962 Kennedy stated that "we have seen no evidence that we would be able confidently in the last 12 months" that U.S.-Soviet cooperation would take place. The President felt, however, that Glenn's flight made the prospects for such cooperation brighter.<sup>2</sup> On February 21, 1962, one day after Glenn's flight, Khrushchev proposed in a congratulatory message that both countries pool efforts to explore outer space. Kennedy responded on March 7 with a five-point proposal for joint U.S.-Soviet space projects, to which Khrushchev replied positively on March 21, adding still other projects for discussion.<sup>3</sup>

Khrushchev was careful to maintain a tough posture even while extending his hand toward cooperation with the United States. Indeed, Khrushchev probably felt compelled to remind the U.S. President that the Soviet Union's readiness for limited cooperation in space was in no sense capitulation to the United States. While Western spokesmen now began to talk of a missile gap in reverse, and attributed Soviet interest in space cooperation to Moscow's recognition of Western capabilities in space, Khrushchev and his marshals now took to boasting of another achievement of Russia's space technology: the "global rocket." Indeed, the Soviet Premier spoke at an election rally of this new weapon only days before his March 20 letter to President Kennedy. Khrushchev told his audience that "in recent years the Soviet Union did not let pass from its hands the initiative in the search for a solution of the disarmament problem." But, he went on, the United States leadership did not comprehend the dangers in modern war. America was becoming increasingly vulnerable, he said, because Soviet "scientists have created a new intercontinental missile which they call 'global.' This missile is invulnerable to anti-missile weapons. (Applause)" Khrushchev declared that U.S. efforts to defend against a

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<sup>1</sup>The New York Times, May 1, 1961, p. 30.

<sup>2</sup>Ibid., February 22, 1962, p. 10.

<sup>3</sup>See Soviet Space Programs, pp. 169-170; texts of correspondence in Arnold W. Frutkin, International Cooperation in Space (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1965), pp. 121-126.

Soviet strike over the North Pole were futile, for the  
 new global rocket can fly around the world in any  
 direction and deal a blow at any set target.

(Applause) The example of the flights of the  
 cosmic ships Vostok I and Vostok II proves the  
 accuracy of the calculations. (Applause)

U.S. defense efforts had been and would be of no avail, for "global  
 rockets can fly from the oceans or other directions where warning  
 facilities cannot be installed." They could not be spotted in due time to  
 take counter measures. Even if the U-2 flights had in fact identified  
 Soviet launching sites, Soviet missiles "can now fire from those positions  
 not across the North Pole but in the opposite direction. (Applause)"

The Soviet Premier took pains to reaffirm Russia's technological  
 prowess:

Our cosmic ships were the first to encircle cosmic  
 space. It is no longer the Russia of bast shoes. It is  
 the Russia of the 20th century, the Russia which has  
 advanced science and technology. (Applause)

But the thrust of this long speech was to justify the Soviet position  
 on general disarmament and a nuclear test ban on which negotiations had  
 begun again in Geneva.<sup>1</sup> And some of Khrushchev's virulence seems to  
 have been directed against Kennedy's recent warning<sup>2</sup> that the United  
 States would resume nuclear testing if Moscow did not accept a test ban  
 with on-site inspection.<sup>3</sup>

Couching soft words among hard, Khrushchev's March 20 letter to  
 Kennedy reiterated Moscow's view that peaceful cooperation depended upon  
 progress toward disarmament:

...the scope of our cooperation in the peaceful  
 exploration of space, just as the scope of the  
 directions themselves, along which such cooperation  
 will be possible, depend to some extent on the  
 settlement of the disarmament problem. Prior to  
 achievement of agreement on general and complete  
 disarmament both our countries would still be limited  
 in their possibilities to cooperate in the field of

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<sup>1</sup>Pravda, March 17, 1962; Radio Moscow, March 16, 1962.

<sup>2</sup>For Kennedy's statement of March 2, 1962, see Documents on Disarmament,  
 1962 (2 vols.; Washington: Government Printing Office, 1963), II, pp. 66-75.

<sup>3</sup>Ostensibly in order to clarify the concept of "global rocket" for its  
 readers, the Soviet weekly Ogonek asked (Continued on page 34)

<sup>3</sup>(Continued from page 33)

the following questions of G. I. Pokrovskii, the well-known military-science writer professor, and Major General: What is a global rocket? How does it differ from ordinary rockets? Pokrovskii's answers appeared in the March 25, 1962, issue of Ogonek (No. 13, pp. 30-31).

"Every ballistic rocket moves in a plane that passes through our planet's center of gravity. Once injected into orbit, a satellite revolves exclusively in its plane, independent of the shape of its orbit: circular, elliptical, or even incomplete, i.e., less than one revolution.

"Thus, it is possible to go from one point of the terrestrial sphere to another only along the two trajectories that lie in the same plane: over the shortest distance and over the longer one--more than a half circumference. Rockets capable of overcoming distances that exceed half a circumference and of enveloping the entire 'globe' of the earth are called global.

"During the last few years there have been set up in the United States of America two air defense belts protecting the country from the Arctic. The first of the belts--preliminary detection and warning--extended from Alaska through Greenland and Iceland to England. According to its creators' intention, this belt, like a large rain umbrella, was to have reliably protected the U.S.A. from nuclear rocket retaliation which was supposed to come from the north. The second defense belt, erected on the U.S.A.-Canadian boundary, was meant to neutralize military aircraft and rocket forces crossing the boundary.

"Now, with the appearance of global rockets, the huge sums of money, wrung from the pockets of the average American, have proved to be 'money spent in vain,' as U.S. Secretary of Defense McNamara acknowledged,\* and U.S. territory has proved to be absolutely defenseless from the south, the east, and the west.

"The geography of the North American continent is such that the creation of a defensive 'umbrella' south of the U.S.A. is out of the question. Defense from the south is also complicated by the fact that the character of the southern neighbors of the U.S.A. differs fundamentally from the compliant character of the northern allies of the U.S.A., who are prisoners of NATO.

"It is also not difficult to construct a series of orbital planes that intersect the earth across the Pacific or the Atlantic Ocean where it is practically impossible to realize early detection of a flying device, and even more so to take defensive measures.

"One more feature of the global rocket should be noted: apart from the high precision of striking a terrestrial target, it possesses the capability of carrying a superpowerful nuclear weapon of great weight."

\* A check by RAND Corporation analysts of McNamara statements prior to the Pokrovskii article revealed no such acknowledgment. See Translations of Political Interest, 1962-1963, ed. Horst Mendershausen (Santa Monica, California: Rand Corporation Memorandum RM-3078-PR, January 1964), p. 31. The Ogonek article, translated by F. J. Krieger, appears in this collection, pp. 31-32.

the peaceful use of the outer military missiles and spaceships, which are launched for peaceful purposes, are based on the same achievement of science and technology.

Although space rockets require more powerful boosters than military rockets, "the principles of designing and production are the same for both military and space rockets." In conclusion, Khrushchev stated that the prospects for cooperation "including joint development of spaceships for reaching other planets--the Moon, Venus, Mars, will be considerably greater when agreement on disarmament is reached."<sup>1</sup>

#### The 1962 GCD Plans: Toward a Narrower Gap

The GCD proposal presented by Moscow in March 1962 at the Eighteen-Nation Disarmament Committee in Geneva differed little from the Soviet proposal of June 1960. All nuclear weapons carriers, whether tactical or strategic, would be eliminated in the first stage. But a new paragraph (in Article 5) was more explicit than the 1960 document in describing the context in which space research would be permitted:

For the peaceful exploration of space the production and testing of appropriate rockets shall be allowed, provided that the plants producing such rockets, as well as the rockets themselves, will be subject to supervision by the inspectors of the International Disarmament Organization.

And Article 15 reiterated the provision of the 1960 proposal that inspection teams from the IDO would carry out an on-site check of every rocket launching.<sup>2</sup> Despite these stipulations for international control, however, the Soviet plan still remained unacceptable to the West for many reasons, one of them being the requirement for all-out nuclear disarmament within one or one and one-half years.

The United States presented its own outline for a treaty on general disarmament on April 18, 1962. The outline was essentially an elaboration of the provisions advocated at the United Nations in September 1961.

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<sup>1</sup>The New York Times, March 22, 1962, p. 18, as quoted in Soviet Space Programs, p. 342.

<sup>2</sup>Documents on Disarmament, 1962, I, pp. 107, 113.

Thus, spelling out in more detail the outer space measures to be enacted in stage I, the April document obligated the signatories to agree to four points:

- (1)...not to place in orbit weapons capable of producing mass destruction....
- (2)...to support increased international cooperation in the peaceful uses of outer space in the United Nations or through other appropriate arrangements....

The third point required the signatories to provide advance notification to the other signatories and to the IDO together with the track of the space vehicle or missile. Only under this third point was there a provision for inspection:

[In] accordance with arrangements which would be set forth in the annex on verification, the International Disarmament Organization would conduct pre-launch inspection of space vehicles and missiles and would establish and operate any arrangements necessary for detecting unreported launchings.

A fourth point provided that the IDO would also monitor agreed limitations on the "production, stockpiling and testing of boosters for space vehicles."<sup>1</sup>

Thus, some ambiguity persisted as to Washington's views regarding on-site launcher inspection as a condition for a prohibition on the orbiting of weapons of mass destruction. Apparently the United States envisaged the ban on bombs in orbit and the advance notification procedure as integral parts of a package program for outer space. If so, a prohibition of deployment of certain weapons in space would be conditional upon Moscow's acceptance of launcher inspection. If, however, Washington decided not to link the two measures with one another (or with other aspects of its GCD program), there was again the possibility--inherent also in the U.S. proposal of September 1961--that the prohibition might

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<sup>1</sup>Documents on Disarmament, 1962, II, p. 360.

be agreed to without on-site controls.<sup>1</sup>

Foreign Minister Gromyko commented on the U.S. proposals in a report to the Supreme Soviet on April 24, 1962:

In submitting their proposal on missiles, the United States representatives are evidently not in a humorous mood, but their position is not very different from one that was the butt of Mr. Briand's wit.

The French Foreign Minister, Gromyko recalled, had observed sardonically during the interwar negotiations that London seemed to maintain that its Admiralty built battleships only to catch herrings in the English Channel. Similarly, Gromyko suggested,

the United States representatives are saying, as it were, that they are not partial to Soviet rockets, which travel too far and hit their targets too accurately; they must be destroyed, but United States atomic bomber bases scattered over the whole world should be retained. For what purpose? For meteorological observations?

Gromyko stated that U.S. negotiators at Geneva were raising "with daily increasing insistence the question of the need to prohibit the use of outer space for military purposes." Washington's insistence on this matter had become more intense, said Gromyko, following Premier Khrushchev's statement "concerning the construction of a global missile in the Soviet Union." Gromyko declared that the Soviet Union favored the prohibition of the military use of outer space. He noted that the Soviet draft treaty on GCD contained "a special provision stipulating that the launching of rockets and space devices shall be carried out exclusively for peaceful purposes. However, this is not a matter which can be settled in isolation from other disarmament measures." The United States representatives

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<sup>1</sup> Secretary of State Rusk in addressing the Eighteen-Nation Conference in March 1962 had cited two kinds of arms control that could be put into effect without delay--a cut-off in the production of fashionable material for weapons use and a transfer of such material to peaceful purposes. But he also said that there existed "another area where action cannot be long postponed." He urged that the U.S.-Soviet cooperative efforts in space that were being developed as a result of correspondence between Kennedy and Khrushchev be extended into the field of disarmament. He then proposed the ban on bombs in orbit and the advance notification procedure outline in the U.S. plan for GCD. Documents on Disarmament, 1962, II, p. 193.

at Geneva were raising this entire question again "in order to worst intercontinental and global missiles and deprive the Soviet Union of the most powerful means of defense and of retaliation against an aggressor." Washington's position, Gromyko warned, was not "calculated to promote agreement" on disarmament.<sup>1</sup>

In July 1962 the Kremlin organized a Congress for General Disarmament and Peace in Moscow. Premier Khrushchev addressed the convocation, defending the Soviet and attacking the United States draft proposals for general disarmament tabled at Geneva. He took particular pains to rebut recent U.S. claims that the balance of power had shifted to favor the West. Not only were such claims dangerous, said Khrushchev, they were also groundless.

In order to secure her security the Soviet Union has been forced to develop over the last few years nuclear weapons of 50, 100, and more megatons, intercontinental rockets, a global rocket which is practically invulnerable to defense and an anti-missile rocket. The ruling groups of the United States which do not possess similar powerful military weapons, have no reason at all to say that the correlation of forces has changed in their favor.

Only by destroying and thus paralyzing all means of nuclear delivery systems from the very outset, said Khrushchev, could a solution be found to the problem of disarmament. Moscow would take this step, even though it possessed "the world's most powerful global and intercontinental missiles...."<sup>2</sup>

Despite the apparent intransigence of the Kremlin's position on general disarmament, its negotiating stance was altered in several ways in the summer and fall of 1962 to bring it more in line with Western proposals.<sup>3</sup> The most significant change occurred on September 21 when, in a speech to the General Assembly, Foreign Minister Gromyko endorsed the "nuclear umbrella" idea that had been expounded by U.S. scientists

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<sup>1</sup> Documents on Disarmament, 1962, II, pp. 431-432.

<sup>2</sup> N. S. Khrushchev, Vseobshchee i polnoe razoruzhenie--garantiia mira i bezopasnosti vseh narodov (Moscow: Gospolitizdat, 1962), pp. 6, 14.

<sup>3</sup> See U.S. Arms Control and Disarmament Agency, Second Annual Report to Congress, January 1, 1962-December 31, 1962 (Washington, D.C., 1963), p. 14. For a potentially significant change in Moscow's position on the test ban issue in late August 1962, see Bloomfield, Clemens, Griffiths, op. cit., pp. 185-186.

at a Pugwash Conference in Moscow two years earlier, some of whom had subsequently joined the Kennedy administration. Gromyko stated that his government was willing to have the Soviet Union and United States retain in their territory until the end of stage I of GCD an agreed, limited number of ICBM's, anti-missile missiles, and anti-aircraft missiles in the ground-to-air category.<sup>1</sup> Soviet spokesmen generally refused to discuss this point in more detail until the West officially agreed to it in principle.<sup>2</sup> On March 27, 1963, however, the Soviet delegate elucidated that Moscow would permit inspection of missile launch pads as part of a comprehensive disarmament program.<sup>3</sup> And the Kremlin went on in September 1963 to propose that the two superpowers retain a nuclear umbrella until the end of the third and final stage of general disarmament.<sup>4</sup>

Moscow's acceptance of the nuclear umbrella principle in September 1962 was part of a series of concessions by both sides on a range of arms control issues that took place in the weeks preceding the Cuban missile crisis. Both the West and the Soviet Union showed considerably greater flexibility in their negotiating stance on nuclear test ban in late August-early September 1962.<sup>5</sup> Peking has also revealed that it received word from Moscow on August 25 that the Kremlin had responded "affirmatively" to a secret proposal by Secretary Rusk for an agreement on the non-proliferation of nuclear weapons.<sup>6</sup>

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<sup>1</sup>A revised version of the Soviet draft treaty incorporating this and other changes in the Soviet position since March 1962 was circulated by the U.N. Secretariat on September 24, 1962 as U.N. Document A/C.1/867.

<sup>2</sup>ENDC/PV.83, November 26, 1962, p. 22.

<sup>3</sup>ENDC/PV.114, March 27, 1963, pp. 39-40.

<sup>4</sup>Documents on Disarmament, 1963 (Washington: Government Printing Office, 1964), p. 516.

<sup>5</sup>See Bloomfield, Clemens, Griffiths, op. cit., pp. 185-186.

<sup>6</sup>See Walter C. Clemens, Jr., "The Nuclear Test Ban and Sino-Soviet Relations," Orbis, X, No. 1 (Spring 1966), pp. 154-159.

This exchange of views between Moscow and Washington was paralleled by still other moves in quiet diplomacy, one of which proved to be crucial in setting the stage for an accord reached in 1963 on the stationing in space of weapons of mass destruction. In the weeks before the Cuban crisis Washington indicated to Moscow its interest in banning the orbiting of such weapons, even without on-site inspection of launching sites. This fundamental change in the U.S. position was the more pronounced because it came shortly after London presented a working paper to the Eighteen-Nation Conference which adhered to earlier Western positions on the need for on-site controls. The U.K. document, entitled a "Preliminary Study of Problems Connected with the Elimination of Rockets as Nuclear Delivery Vehicles," posed two alternative courses in order to assure "against aggressive developments in space": (1) either "all space projects should be brought as soon as possible under some comprehensive organization for international collaboration", or (2) failing this, the International Disarmament Organization would have to subject all satellites and spacecraft to inspection at all stages of design and launching, a task which would require a "very large number of additional inspectors."<sup>1</sup>

In view of the British study and the large range of other matters under negotiation, all moving in counterpoint to the mounting Cuban crisis, the shift in the U.S. position on banning bombs in orbit seems to have received little attention in 1962, although Moscow returned to it in the latter part of 1963.

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<sup>1</sup>The U.K. paper emphasized the difficulty in distinguishing between military rockets and rockets intended for the peaceful exploration of space. It also noted the possibility of hidden stockpiles, concealed launching sites, and clandestine production of missiles. The problems that would confront the IDO were suggested by the fact that over 100 satellites had been launched up to mid-1962, 50 of which were still in orbit. Sputnik IV, weighing 10,000 lbs., had an estimated life of 2-3 years. Midas II (5,000 lbs.) had an estimated life of 8-15 years. Documents on Disarmament, 1962, II, 701-705.

## III. THE SOVIET-U.S. "UNDERSTANDING," 1963

The Strategic Backdrop

The 1962 shift in the U.S. position on the need for on-site inspection of a ban on bombs in orbit came in the wake of a reappraisal of the overall strategic balance that Washington concluded favored the United States--not the Soviet Union. The shift coincided with major policy statements indicating that Washington deemed it dangerous, costly, and superfluous to extend the deterrence systems of either superpower into outer space. Thus, Deputy Secretary of Defense Roswell Gilpatric declared on September 5, 1962:

Today there is no doubt that either the United States or the Soviet Union could place thermonuclear weapons into orbit, but such an action is just not a rational strategy for either side in the foreseeable future. We have no programme to place any weapons of mass destruction into orbit. An arms race will not contribute to our security. I can think of no greater stimulus for a Soviet thermonuclear arms effort in space than a United States commitment to such a programme. This we will not do.

He warned, however, that the United States "will, of course, take such steps as are necessary to defend ourselves and our allies, if the Soviet Union forces us to do so."<sup>1</sup>

Similarly, discussing the U.S. position on peaceful and scientific cooperation in outer space before the First Committee of the General Assembly in December 1962, U.S. representative Gore declared that "even though it is now feasible, the United States has no intention of placing weapons of mass destruction in orbit unless compelled to do so by actions of the Soviet Union." While noting that the U.S. draft treaty on general disarmament included a provision against the orbiting of weapons of mass destruction in space in the first stage of disarmament, Gore said nothing about such a provision as a separate measure. He stressed, however, that even while negotiations continued on the actual elimination of nuclear weapons and delivery systems,

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<sup>1</sup> Documents on Disarmament, 1963 (Washington: Government Printing Office, 1964), p. 537.

it is especially important that we do everything now that can be done to avoid an arms race in outer space--for certainly it should be easier to agree now not to arm a part of the environment that has never been armed than later to agree to disarm parts that have been armed.

The United States therefore expressed the hope that the Soviet Union would "likewise refrain from taking steps which will extend the arms race into outer space."<sup>1</sup>

One indicator of the seriousness of the Gilpatric and Gore statements was the cancellation by the Defense Department in December 1962 of plans for immediate development of "Project Saint"--a program for an interceptor satellite capable of finding and inspecting a potentially hostile spacecraft. Already three years in the making, Project Saint was scheduled for test flights in 1963, but was now to be reoriented for longer-term objectives. The Defense Department was reported to believe that the threat of offensive uses of satellites was undefined and remote; and that the offensive mission of a bomb-carrying satellite could be accomplished more easily and cheaply by ground-based weapons. The Air Force, it was said, had now acquiesced in this evaluation. When its Project Saint had begun in 1960, the aim was to produce a maneuverable satellite capable of making a rendezvous with a satellite, inspecting it by electronic means, and neutralizing or destroying it if necessary. Under the revised program this capability would not be realized until at least 1968, the earliest date a positive military threat was expected from enemy satellites.<sup>2</sup>

The rationale for U.S. restraint was spelled out more clearly by another military analyst quoted in The Christian Science Monitor as it reported the Gilpatric speech:

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<sup>1</sup> Documents on Disarmament, 1962 (2 vols.; Washington: Government Printing Office, 1963), II, p. 1122.

<sup>2</sup> The New York Times, December 4, 1962, p. 1.

Any space-based weapon one can devise today comes out to be more expensive, more complex, less reliable, and harder to maintain than an equally effective and destructive earthbound weapons system such as a nuclear-tipped ICBM.<sup>1</sup>

Perhaps there were two audiences intended for these pronouncements from Washington. One was the domestic audience of military, congressional, and industrial leaders criticizing the administration for lagging behind the Soviet Union in the military applications of space. There had been mounting pressure on the administration to step up its military space program (then costing \$1,500,000 annually in addition to the \$3,500,000 earmarked for NASA), particularly from the Air Force. Deputy Director of Air Force Operations Major General John K. Hester told a congressional committee that "radar surveillance support for space systems such as a satellite inspector or space counterweapon system will require a world-wide system to detect, track, and catalogue all objects in space." Similarly, Air Force research director Lt. General James Ferguson told the House Space Committee that the Soviet Union could put a nuclear warhead into orbit without its being detected by the United States. Ferguson stated that Moscow had plainly demonstrated its interest in the military uses of space. He calculated that a space vehicle in orbit with a warhead could attack in half the time needed by an ICBM. Senator Cannon of Nevada declared it was a "wholly fallacious and fearsome misconception" to believe that Moscow would refrain from entering a space arms race if Washington did the same. It was only a matter of time, he contended, until military spaceships engaged in dog fights as aircraft did in World War II.<sup>2</sup> In August the same Senator had urged a six-point program to speed up military space development, including increased emphasis on the manned DynaSoar vehicle and acceleration of the Titan III missile to lift military payloads. "The emergence of the nuclear bomb and the ballistic missile," he asserted, "has completely disrupted the balance between time, space and destructive power."<sup>3</sup>

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<sup>1</sup>See The Christian Science Monitor, September 6, 1962.

<sup>2</sup>Ibid.

<sup>3</sup>The New York Times, August 20, 1962.

A second audience addressed by Gilpatric and other administration spokesmen was in Moscow. While the Kremlin preached general disarmament and made some conciliatory moves toward partial measures in 1962, it also continued to exploit its space program for military-threat purposes, for example, warning of the military implications of its orbiting of "heavenly twins."<sup>1</sup> More important perhaps were the mounting indications in 1962 of Soviet interest in the direct military applications of outer space. Khrushchev's boasts of a "global missile" in March were paralleled and followed by a number of articles in the Soviet military press warning that the Pentagon was engaged in an intensive program of space weaponry against which the Soviet Union had to take "corresponding measures."

Two articles by Lieutenant Colonel V. V. Larionov in Red Star in March 1962 indicated not only that the Soviet Union had to take corresponding measures against the preparations of the U.S. imperialists to use space for military purposes; they also stressed that Soviet space technology for launching satellites and ballistic rockets was far superior to American--a clear suggestion that the Soviet Union could achieve pre-eminence in this field.<sup>2</sup> In the second article Larionov noted that discussion in the press of "various countries" emphasized "the growing implications of cosmic means of combat." He continued:

It is considered that the conquering of outer space is unfolding a new sphere of activity for strategy, and significantly broadens its possibilities for the achievement of strategic results independent of the outcome of conflicts in the atmosphere, on the ground, or at sea.

Soviet strategy, Larionov declared, recognized that in the 1960's the possibilities of solving strategic-technological problems had broadened.

In connection with this, it is recognized in military strategy that cosmic armaments will become first of all a means for resolving strategic problems, since its action cannot be connected with any specific ground, sea or air theater of military operations.

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<sup>1</sup>See The Christian Science Monitor, September 6, 1962.

<sup>2</sup>"Missiles and Strategy," Krasnaia Zvezda, March 18, 1962; "Outer Space and Strategy," Krasnaia Zvezda, March 21, 1962.

While the Soviet Union held a commanding lead over the United States in payload-booster capability and U.S. defenses were powerless against global rockets,

it must be clear to the Soviet reader that the stormy temple of scientific and technological progress requires continuous attention...Therefore, even though today one cannot yet speak of a complete conquest of outer space as a new and fully-mastered sphere of military operations, one must clearly see the prospects that are opening in the field of military-technical equipment and military strategy in relation to/ those aggressive plans hatched by the ruling circles of the leading imperialist states.<sup>1</sup>

In September 1962 the same ideas appeared, only somewhat muted, in the treatise Military Strategy edited by Marshal Sokolovskii, to which Colonel Larionov was a major contributor. The book contended that the United States was developing several space bombardment systems which Washington planned to launch into orbit "when war threatens, in order to deliver nuclear blows on targets in socialist countries at a command from earth."<sup>2</sup> The imperialists "subordinate space research to military purposes and...plan to use space to accomplish their aggressive purpose-- a surprise nuclear attack on the Soviet Union and the other socialist

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<sup>1</sup>"Outer Space and Strategy," loc. cit.

<sup>2</sup>These systems were said to include a bombardment satellite equipped with space-to-earth missiles; piloted space bombers (DynaSoar); piloted bombers for operations at great heights; and an orbital bombardment system for the destruction of ground targets. V. D. Sokolovskii (ed.), Soviet Military Strategy, Translated and with an Analytical Introduction by Herbert S. Dinerstein, Leon Gouré, Thomas W. Wolfe (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1963), p. 426. In another part of the book, (pp. 176-179), however, a discussion of U.S. plans for military space vehicles planned for 1960-1975 treats them as "strategic" weapons, but lists only "support" systems such as Samos except for one potential bombardment system: the DynaSoar project (which was cancelled in late 1963). An updated discussion of the U.S. space program, including other alleged bombardment space systems, appeared early in 1963. See Major General B. Teplinsky, "Pentagon's Space Programme," International Affairs, No. 1 (January 1963), pp. 56-62.

countries." Consequently,

Soviet military strategy acknowledges the need to study the use of space and space vehicles to reinforce the defense of the socialist countries.... It would be a mistake to allow the imperialist camp to gain any superiority in this area. The imperialist must be opposed with more effective weapons and methods of using space and defense.<sup>1</sup>

It seems likely that Khrushchev was confronted by a faction urging him to go further or faster in developing space weapons.<sup>2</sup> It may have been that the decision to send missiles to Cuba was motivated in part by a desire to deflect such pressures. In any event Washington's assurances that the

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<sup>1</sup>Sokolovskii, op. cit., pp. 426-427.

<sup>2</sup>Although the causal and even the sequential evidence is not entirely clear, an apparent clash between a "military space lobby" and more conventional "modernists" seeking to rely on land- and sea-based rockets has been suggested in research by Herbert L. Sawyer at the Fletcher School of Diplomacy. Khrushchev himself may have led the latter group. On August 7, 1961, at the height of the Berlin crisis, Khrushchev argued that defense expenditures had already been raised, but that the resources devoted to military purposes were now sufficient: "Our rocket technology... is going well, and therefore it is unnecessary for us to set aside additional resources [for this purpose]. Also, we are paying the necessary attention to other aspects of military technology." (N.S. Khrushchev, Kommunism--mir, i schast'e narodov [2 vols.; Moscow: Gospolitizdat, 1962], I, p. 344.) The same month, however, an article in a military journal warned that, as part of the general threat of aggressive imperialism, the U.S. space program was being oriented for military purposes. "This circumstance," the article contended, "forces the Soviet Government to divert some of the efforts directed toward the development of rocket technology to the creation of new kinds of armaments." (Lt. Col. V. Liutyi, "Put' v kosmos," Voenno-istoricheskii zhurnal, No. 8 [August 1961], p. 36.) In the same spirit, it is possible that the Larionov articles in March 1962 clashed with Khrushchev's views: while the Premier sought to rely on the existing global rocket capability, and was ready for some peaceful cooperation with the United States, Larionov warned of the Pentagon's aggressive intentions and suggested that Soviet military space programs should be developed beyond the global rocket. In a quite different vein an unsigned article published in the journal of the Academy of Sciences in April 1962 commended Khrushchev (by name) for his moves toward cooperation with the United States in space. Such cooperation, it held, was "necessary" and "would lessen the risk of the military utilization of space." (Godovshchina kosmicheskogo poleta cheloveka, "Vestnik akademii nauk SSSR, XXXII, No. 4 [April 1962], p. 14.)

United States did not intend to put offensive weapons systems in space could serve in part to countervail the impression created by statements from military and industrial leaders calling for a more aggressive U.S. space program.

After the Cuban crisis there continued to be signs that Moscow was working on weapons systems in space. In February 1963 the Chief of the Soviet Strategic Missile Forces, Marshal Sergei S. Biriuzov, hinted at a possible Soviet development of a bombardment satellite. He declared that

the success in the development of Soviet arms and their high quality, reliability, and precision are witnessed also by the rockets used in the exploration of the cosmos. It has now become possible, at a command from earth, to launch rockets from a satellite at any desired time, and at any point in the satellite's trajectory.<sup>1</sup>

In March Biriuzov was designated Chief of Staff of Soviet Armed Forces, a position which he held until his untimely death in 1964.<sup>2</sup>

Although Washington did not consider it necessary or desirable to place bombs in orbit, Defense Secretary McNamara testified in January 1963 that the Soviet Union "may now have or soon achieve" the ability to put bomb-carrying satellites into orbit. While he did not consider it logical for Moscow to pursue such a course, McNamara stated that "we cannot ignore the possibility of that kind of a threat arising in the future, and we must make the necessary preparations now to counter it if it does develop." He declared that the North American Defense Command was already cataloguing all objects in space, and that work was continuing on the satellite inspector project to determine the nature and mission of orbiting objects.<sup>3</sup>

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<sup>1</sup>Radio broadcast, February 25, 1963. Between "solution of a problem" and deployment there could of course be a long road. As for the accuracy of Soviet long-range rockets tested in the Pacific in May 1963, a Russian Naval Commander told TASS that "our rocketeers scored a bull's eye." (Reuters dispatch from London on May 29, 1963.)

<sup>2</sup>His actual appointment may have been made weeks before the announcement. Western experts believed that his replacement of Marshal Zakharov, though the latter was age 65, might portend increased Soviet emphasis on rocketry. Biriuzov also claimed in February that the Soviet Union had solved the problem of destroying enemy rockets in flight. (The New York Times, March 29, 1963.)

<sup>3</sup>The Christian Science Monitor, January 31, 1963.

Gilpatric's September 1962 statement may also have aimed at inhibiting Moscow from attempting a space spectacular that might amount to a "quick-fix" to redress the Soviet bargaining posture which had been undermined by U.S. long-range claims of a four-to-one American lead in long-range delivery systems. The Kremlin had often attempted to enhance its political position by dramatic moves, not always reflecting the substance of existing military strength, but designed at any rate to register the maximum respect for Soviet prowess. Indeed, at the very moment of Gilpatric's speech, Moscow was clandestinely attempting to emplace IREB's in Cuba as an inexpensive and rapid means of overcoming the U.S. lead in ICBM's. While military analysts conceded the substantial change the Cuban missiles would have brought in Moscow's strategic posture, President Kennedy was apparently more concerned about their psychological and political impact.<sup>1</sup> At a minimum the Kennedy administration may have sought by the Gilpatric and Gore statements, and the reorientation of the Saint Program, to assure the Kremlin that the United States did not plan to carry the arms race into space--at least not for the time being or unless provoked to do so by Soviet moves.

Soviet representative Morozov responded immediately to Gore's statement at the United Nations on December 3, 1962. Morozov concentrated primarily on rebutting the U.S. position on various legal issues on cooperation in outer space. As for the specific problem of arms control, Morozov declared only that all delivery systems for nuclear weapons had to be prohibited in the first stage of general disarmament. This attitude was certainly a continuation of the Soviet line that arms control in space could not be settled apart from terrestrial disarmament, but Morozov's statement amounted to a retraction of Gromyko's proposal in September allowing a limited nuclear umbrella to be maintained by the two superpowers in the first stage of disarmament.<sup>2</sup> More likely, however, it was probably just an inaccurate, oversimplified statement of the Kremlin's current position.

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<sup>1</sup>See Sorensen, op. cit., pp. 678 ff.

<sup>2</sup>Documents on Disarmament, 1962, II, p. 1133.

### The Spirit of Moscow and the Moon

While some progress was made on bilateral U.S.-Soviet cooperation in space science,<sup>1</sup> and while negotiations on a test ban began to move from dead center, the winter of 1962-1963 saw little or no narrowing of the Western and Soviet positions on the legal aspects of cooperation in outer space. A U.N. General Assembly Resolution of December 14, 1962, went so far as to express regret that the Committee on the Peaceful Uses of Outer Space "has not yet made recommendations on legal questions connected with the peaceful uses of outer space." The resolution could only recommend that the Committee return to the drafting table and consider the draft declarations and agreements proposed by the Soviet Union, the United States, the U.A.R., and the United Kingdom.<sup>2</sup>

Perhaps the most comprehensive space arms control proposal ever presented was outlined in a draft treaty put forward by Mexico before the Eighteen-Nation Disarmament Committee on June 21, 1963. Its broad terms implied that, although Mexico may have consulted with Washington and Moscow in advance, the draft's provisions were probably unacceptable to either superpower. Article I would have ruled out not only weapons of mass destruction but all other weapons in space, including anti-satellite and anti-missile defenses:

Every military measure, among others, such as the placing in orbit and the stationing in space of nuclear weapons or weapons of mass destruction or of vehicles capable of delivering such weapons, is prohibited. Tests of such weapons, or of any other warlike device for military weapons, are likewise prohibited, as is also the stationing or placing in orbit of bases for launching weapons of any type whatsoever.

The same article did, however, permit "employment of military personnel or equipment" for scientific or other peaceful purposes in space--a fundamental requirement for the continuation of either the Soviet or the U.S. space programs as then organized.

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<sup>1</sup>See, e.g., The Christian Science Monitor, December 7, 1962 and March 23, 1963; The New York Times, May 23, 1963.

<sup>2</sup>Ibid., II, pp. 1232-1233.

Article III required that the signatory states report to each other through the United Nations "any act or activity carried out for the purpose of the peaceful utilization and exploitation of outer space, and likewise the launching of any device, and the specifications of that device."

Disputes under the treaty were to be settled solely by peaceful means, but Article V established a sweeping enforcement authority that seemed to place initial responsibility upon individual states--a delegation to which Moscow in particular might react with sensitivity. Each contracting power would be obliged

to make appropriate efforts, compatible with the Charter of the United Nations, to ensure that no one shall carry out in outer space or on celestial bodies any activity contrary to the...Treaty.<sup>1</sup>

The Mexican proposal was too radical for acceptance by Moscow or Washington; in any case it was eclipsed as world attention shifted to the tripartite negotiations on nuclear testing. A major move on space arms control and arms control generally was the signing of the Moscow Treaty on August 5, 1963, prohibiting nuclear testing "in the atmosphere; beyond its limits, including outer space; or underwater...."<sup>2</sup> Both superpowers seemed anxious to find other areas of accord as well. Moscow had dropped its insistence of an East-West non-aggression pact as a condition for the test ban, but Washington and London pledged that they would at least consult their other NATO allies on the possibility of such a pact. The United States raised with Moscow the possibility of nonproliferation measures, but the Kremlin showed little immediate interest.<sup>3</sup> Senator Joseph S. Clark, among others, suggested that "the international exploration of outer space should be the second step toward world peace after the Senate acts on the limited test ban treaty."<sup>4</sup> Moscow also seemed interested in this possibility.

Moscow's interest in space cooperation and arms control arrangements with Washington was manifested in several ways. But first there was something of a false alarm. Only July 23, 1963, British astronomer Sir Bernard Lovell wrote to Dr. Hugh Dryden at NASA that he had just spent from June 23 to July 15 in the Soviet Union as a guest of the Academy of

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<sup>1</sup>Documents on Disarmament, 1963 (Washington: Government Printing Office, 1964), pp. 239-242.

<sup>2</sup>Documents on Disarmament, 1963, p. 292.

<sup>3</sup>For background, see Bloomfield, Clemens, Griffiths, op. cit., pp. 189-193; Sorensen, op. cit., p. 743.

<sup>4</sup>The Christian Science Monitor, August 10, 1963.

Sciences. Lovell reported that an agreement had been reached for cooperation between his Jodrell Bank radio telescope facilities and the deep space tracking station in the Crimea. He went on to relate that M. V. Keldysh, President of the Academy of Sciences, had told him the Soviet Union rejected "(at least for the time being)...plans for the manned lunar landing." Three reasons were given by Keldysh: (1) there was no immediate solution to the problem of protecting cosmonauts against radiation; (2) there appeared no economically practical way to put sufficient equipment on the moon to guarantee a safe return from a manned landing; (3) the scientific problems involved could be solved more cheaply and quickly by unmanned, instrumental lunar program. In response to Lovell's objections, however, Keldysh allegedly

replied that the manned project might be revived if progress in the next few years gave hope of a solution of their problems, and that he believed the appropriate procedure would be for scientists to formulate on an international basis (a) the reasons why it is desirable to engage in the manned lunar enterprise and (b) to draw up a list of scientific tasks which could not be solved by experimentation alone.

Lovell assured Keldysh that his views would be conveyed to British and U.S. authorities.<sup>1</sup>

Despite the obvious ambiguities in Lovell's report, some journalists and public officials (in Arnold Frutkin's phrase) rode this horse in two opposite directions at the same time: they took it as (1) a sign the Soviet Union had given up her plans for a manned moon flight and (2) a feeler for cooperation and with the United States in such a flight.<sup>2</sup>

NASA director James E. Webb replied firmly to Lovell that "if the Soviet Academy of Sciences is indeed interested in the matters you describe in your letter, we will look forward to the possibility of further explorations by Dr. Hugh Dryden and Academician Anatoli Blagonravov as to their views and desires."<sup>3</sup>

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<sup>1</sup>Text in Frutkin, op. cit., pp. 127-129; also in The Congressional Record, August 9, 1963, p. 13903.

<sup>2</sup>Frutkin, op. cit., p. 108.

<sup>3</sup>The Christian Science Monitor, August 10, 1963.

Although subsequent discussions between Dryden and Blagonravov led to U.S.-Soviet accord on other matters of space cooperation, the Soviet side does not seem to have raised issues of the kind suggested by Lovell.<sup>1</sup> Nor did the Kremlin respond positively to President Kennedy's address at the United Nations on September 20, 1963, calling for a joint U.S.-Soviet lunar expedition.<sup>2</sup> Rather, on October 14, 1963, Keldysh gave a news conference in Prague at which the Czech radio reported that he

refuted the statement made by Bernard Lovell...that according to the President of the U.S.S.R. Academy of Sciences...the Soviet Union has abandoned, at least for the near future, its aim to land a man on the moon.

Keldysh was quoted as saying:

Professor Lovell obviously came to his conclusion himself, as we have never said this. The tasks of making a safe manned landing on the moon are without doubt very exacting and demand great preliminary research. We therefore cannot say precisely when we will realize this task.<sup>3</sup>

The perfect squelch was provided several weeks later, when Khrushchev himself denied that the Soviet Union had ever "deferred," "postponed," or "withdrawn" her competitive landing program. Rather, he indicated the Soviet Union would send a man to the moon when preparations were complete to ensure his safety.<sup>4</sup>

The possibility remains, of course, that Keldysh or other Soviet officials did convey to Lovell the message which he reported to NASA. Moscow may have sought to raise U.S. hopes about detente with the Soviet Union and, perhaps as a consequence, to slacken the U.S. space effort. (The Lovell letter coincided with Congressional debate on the \$5,500,000 space authorization bill, which included plans to put U.S. astronauts on the moon by 1970.) It is also possible (though not likely)

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<sup>1</sup> Dryden discussed the matter of a joint lunar expedition with Blagonravov during the week before Kennedy's U.N. speech, and was told by the Soviet Academician that the subject might be discussed after instrumented landings had been achieved. (Frutkin, op. cit., p. 113.)

<sup>2</sup> For President Kennedy's proposal, see below, pp. 55-57.

<sup>3</sup> Cited in Frutkin, op. cit., pp. 110-111.

<sup>4</sup> Space Daily, November 7, 1963, p. 217; The Christian Science Monitor, November 8, 1963.

that Soviet scientists and/or politicians were more interested in space cooperation at the time of Lovell's visit than when Keldysh commented on the Lovell letter in October. But a literal reading of Lovell's message to Dryden in July does not describe a Soviet interest in a moon flight with the United States. At most, it attributes to Keldysh a suggestion for an international conference to discuss the utility of a manned lunar expedition. To be sure, Moscow was aware that the U.S. Congress repudiated Kennedy's call for a U.S.-Soviet moon probe by writing into the NASA authorization bill for fiscal 1964 a provision that the money could not be used for a lunar expedition with any other nation without Congressional approval. Even without this rebuff, however, it seems unlikely the Kremlin was ready in 1963 for the political and technical consequences inherent in cooperative space expeditions with the United States.

A more substantial if less sweeping indicator of Soviet interests in space cooperation was the announcement on August 16, 1963, that negotiations between Dryer and Blagonravov had led to U.S.-Soviet accord to cooperate in projects involving weather and communications satellites. Meteorological forecasting was to be facilitated by a round-the-clock weather "hot line" scheduled for early 1964, while radio transmissions were to be bounced off a passive Echo balloon satellite launched by the United States in 1964.<sup>1</sup> Agreement in principle on these matters had been reached in the Kennedy-Khrushchev correspondence after the first U.S. manned space flight in February 1962. Details had been worked out in negotiations in March and May 1963. Final U.S. approval came on July 8 and Soviet approval on August 1--four days before the formal signing of the test ban treaty, but several days after it was initialed on June 25, 1963.

The "spirit of Moscow" associated with the test ban treaty probably helped to overcome whatever political or technical obstacles impeded the agreement on space cooperation. That Moscow wanted the accord in large measure for political reasons is suggested by the fact that the Soviet

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<sup>1</sup>The New York Times, August 17, 1963.

Union has turned out to be extremely laggard in fulfilling her part of the Dryden-Blagonravov agreement.<sup>1</sup> The 1962-1963 accords were facilitated also in that they, as Frutkin has pointed out,

provide for coordination rather than integration of effort...for a kind of arm's length cooperation in which each side carries out independently its portion of an arrangement without entering into the other's planning, design, production, operations, or analysis.

The accords dealt with instrumentation for basic science, not of basic rocket and spacecraft technology. No classified or sensitive data were to be exchanged.<sup>2</sup> Hence the projected level of intrusion into Soviet security system was relatively low.

By far the most important indication that the Kremlin sought to find in outer space agreements a means of strengthening the "spirit of Moscow" was the question which a Soviet official put to a U.S. delegation visiting Moscow in August 1963. The official asked whether in fact the United States meant to stand by its suggestion, made privately roughly one year earlier, that Washington would agree to a ban on bombs in orbit without provisions for on-site launcher inspection. Assured that the United States continued to hold to this position, the Kremlin acted with dispatch. The major address by Soviet Foreign Minister Gromyko to the General Assembly on September 19, 1963 declared: "The Moscow Treaty has banned nuclear tests in space. Now we have another question on the agenda." Outer space, Gromyko stated, must "never become another springboard for war, destruction and death." The Soviet Union and United States, he went on, "are persistently working to solve even more complicated problems in this field."

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<sup>1</sup>Part of Moscow's difficulty stems from the fact that its space program in meteorology and communications has lagged that of the United States. A cynical interpretation holds that the Kremlin sought to reduce through cooperative projects the American lead in these areas. On the other hand the Soviet side showed itself anxious in later 1964-early 1965 to conclude a cooperative agreement in space biology--an area where Soviet pre-eminence was recognized.

<sup>2</sup>Frutkin, op. cit., pp. 100-101.

Further:

Being willing now to take steps...to prevent the spread of the armaments race to outer space, and desiring to create the best possible conditions for the utilization and exploration of outer space to the benefit of all nations, the Soviet Government deems it necessary to reach agreement with the United States Government to ban the placing into orbit of objects with nuclear weapons on board.

Although Moscow would later endeavor to take credit for initiating this measure, Gromyko stated:

We are aware the United States Government also takes a positive view of the solution of this question. We assume also that an exchange of views on the banning of the placing into orbit of nuclear weapons will be continued...on a bilateral basis. It would be a very good thing if understanding could be reached and an accord concluded on this vital question. The Soviet Government is ready.<sup>1</sup>

While Gromyko spoke of a ban on bombs in orbit as a separate measure, his speech also went some distance toward making the Soviet GCD proposal more compatible with the security requirements of both superpowers. A limited nuclear umbrella could now be retained by Moscow and Washington not only through the first stage, as Gromyko proposed in September 1962, but until the end of the third stage. From the very outset of the second stage, moreover, "control should be instituted over the remaining rockets as well as over their nuclear warheads."<sup>2</sup>

The limited test ban, meanwhile, continued to be debated by the U.S. Senate, which advised ratification only on September 24, 1963.<sup>3</sup> President Kennedy observed on September 9 that "the treaty is being so chewed up in the Senate and we've got to make so many concessions to make sure it passes, that we've got to do something to prove to the world we still mean it. If we have to go to all this trouble over one small treaty, people are likely to think we can't function at all--unless I can dispel some doubts in New York."<sup>4</sup> Thus, according to Schlesinger, the progress of the test ban debate

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<sup>1</sup> Documents on Disarmament, 1963, pp. 522-523.

<sup>2</sup> Ibid., p. 516.

<sup>3</sup> The President ratified the treaty on October 7 and it entered into force on October 10, 1963.

<sup>4</sup> Arthur M. Schlesinger, Jr., A Thousand Days (Boston: Houghton Mifflin Company, 1965), p. 919.

confirmed Kennedy's decision to speak for a second time before the U.N. General Assembly. Schlesinger himself suggested that the President again propose a joint moon shot, a notion to which Kennedy gave quick approval after hurried consultation with NASA, the Defense and State Departments, and the Arms Control Agency.<sup>1</sup>

The President's U.N. address followed by one day that of Andrei Gromyko. "Surely," Kennedy told the General Assembly,

we should explore whether the scientists and astronauts of our two countries--indeed, of all the world--cannot work together in the conquest of space, sending some day in this decade to the moon not the representatives of a single nation but the representatives of all our countries.

Although the interests of economy and of mankind called for such cooperation, Kennedy noted, many obstacles had to be crossed: allies had to be consulted, for their interests had to be protected; detailed negotiations would also be needed; most important, a new approach to the cold war was required--"a desire not to 'bury' one's adversary but to compete in a host of peaceful arenas, in ideas, production, and ultimately in service to all mankind."

Kennedy referred specifically to Gromyko's space arms control proposal of the previous day. Gently recalling that the measure in question was initiated by the United States, the President said he was "encouraged" by the Soviet Moscow's "affirmative response." Kennedy called for renewed negotiations to "work out a practicable arrangement" to "keep weapons of mass destruction out of outer space."<sup>2</sup>

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<sup>1</sup>Ibid., pp. 919-920; Sorensen, op. cit., p. 743.

Several days before Kennedy's speech the director of the Manned Space-Craft Center, Dr. Robert R. Gilruth, stated that a joint lunar expedition was impractical for technical and security reasons. (See The New York Times report on the U.N. speech, September 21, 1963, p. 1). According to one official, however, Gilruth had not been appraised of Kennedy's forthcoming proposal. (Frutkin, op. cit., p. 112.)

Schlesinger states that James E. Webb was consulted on the proposal for a joint moon expedition, but does not say if NASA, like other departments consulted, also offered "no objection."

<sup>2</sup>Documents on Disarmament, 1963, pp. 528-529. Kennedy reiterated the U.S. interest in a joint lunar expedition in a speech at the University of Maine on October 19, 1963. (Ibid., p. 543.)

Kennedy was silent on two other steps advocated by Gromyko: the nuclear umbrella concept and a suggestion that the heads of government meet in Moscow in 1964 to continue disarmament negotiations. Rather, the President offered another "agenda of further steps" stressing safeguards against surprise attack, non-transfer of nuclear weapons, and an inspected comprehensive test ban.

The President's speech was applauded by Mr. Gromyko, who later commented that its tone had been "conciliatory," which he deemed to be a "good sign." Gromyko reserved comment on Kennedy's specific proposals, but he indicated that Soviet-U.S. negotiations would continue.<sup>1</sup>

Several days later Gromyko stated that it was "quite possible" the current round of East-West talks would produce an agreement forbidding the orbiting of nuclear weapons in space. He believed that Soviet and U.S. views coincided "in substance on this question." He was much less optimistic however about agreement on other arms controls such as the exchange of observers in Central Europe and non-dissemination of nuclear weapons.<sup>2</sup>

#### The Soviet-U.S. Understanding: Legal Aspects

On October 3 Soviet, U.K., and U.S. negotiators in New York announced their agreement in principle to prohibit the orbiting of nuclear weapons in space. Diplomatic sources indicated that the announcement was made principally at the suggestion of the Earl of Home, Britain's Foreign Secretary, to give the tripartite talks an air of progress.<sup>3</sup> Important questions remained to be resolved before the agreement in principle could be translated into a more formal understanding.<sup>4</sup> In what form would the accord be expressed? To what extent would it be open for the adherence of other states? What obligations would it entail?

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<sup>1</sup>The New York Times, September 21, 1963, pp. 1, 6.

<sup>2</sup>Ibid., October 3, 1963, p. 1.

<sup>3</sup>Gromyko and Rusk were the other negotiators. Despite the cordial atmosphere, they found themselves hard put to find common ground on most other outstanding East-West issues. See The New York Times, October 10, 1963.

<sup>4</sup>The text of the agreement in principle, if there was a text, was not made public.

Four major alternative means of formalizing the accord were considered: unilateral but simultaneous declarations; a bilateral statement by Moscow and Washington; a treaty, bilateral or multilateral; a General Assembly resolution that recorded in some way the intent of the Soviet Union and United States.

The spectrum of choice was narrowed by five factors: First, the United States and probably Russia as well wanted to continue their satellite programs for military reconnaissance and weather control. Second, neither superpower could be sure what future technological or other determinant of the military balance might later affect their judgment about the utility of weapons in space. Third, a ban without inspection was by definition unenforceable and, for that very reason, would constitute an undesirable precedent in U.S. perspective. Fourth, the reaction of the U.S. Senate to a space treaty might be even less enthusiastic than that body's discussion of the test ban and the wheat deal with the Soviet Union. Fifth, in consequence of these complications, acceptable treaty language would be very difficult to draft.<sup>1</sup>

These factors led the United States to propose to Moscow the fourth alternative listed, i.e., a U.N. resolution taking notice of Soviet and U.S. declarations of intent. Soviet diplomats, it is reported, did not object to this format or offer another. Khrushchev like Kennedy may have been reluctant to seek his government's formal ratification of another arms control treaty with the main adversary. Moscow could easily observe, in any event, the difficult passage of the test ban treaty through the U.S. Senate. The Kremlin's interest in improving relations with the Kennedy administration would have made it counterproductive to create more internal difficulties for the executive branch in Washington.

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<sup>1</sup>See The New York Times, issues of October 5, 10, 16, 17, 1963; and Sorensen, op. cit., p. 743, where the "enforceability" and Senate "consent" problems are emphasized as bearing on the President's decision not to seek a formal treaty.

Negotiation between William C. Foster and Nikolai T. Fedorenko produced an accord on the terms of a draft resolution on October 15, 1963.<sup>1</sup> The document was co-sponsored by all members of the Eighteen-Nation Disarmament Committee except France; it was passed by acclamation in the First Committee on October 16; and by the General Assembly itself on October 17.

The resolution made two main points:

First, it welcomed

the expressions by the Union of Soviet Socialist Republics and the United States of America of their intention not to station in outer space any objects carrying nuclear weapons or other kinds of weapons of mass destruction;

Second, it called upon all states

(a) To refrain from placing in orbit around the earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, installing such weapons on celestial bodies, or stationing such weapons in outer space in any other manner;

(b) To refrain from causing, encouraging or in any way participating in the conduct of the foregoing activities.<sup>2</sup>

What obligations resulted from this resolution? It was not a legally-binding treaty but had only moral force, strengthened by the fact that it was unanimously adopted. The first part took note of expressions of intent by two governments; the second part was more hortatory, calling upon all states to refrain from certain activities. The second part, therefore, had even less compelling character than the first. To be precise, no "ban" or "prohibition" was reached. President Kennedy himself, in referring to the "agreement in principle" reached on October 3, said there was no real agreement, but only a "coincidence of views," which he welcomed.<sup>3</sup> An address by the director of the U.S. Arms Control and Disarmament Agency stated that

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<sup>1</sup>The New York Times, October 16, 1963.

<sup>2</sup>General Assembly Resolution 1834 (XVIII): Stationing Weapons of Mass Destruction in Outer Space, October 17, 1963. The resolution was adopted by acclamation.

<sup>3</sup>The New York Times, October 10, 1963. Several delegations openly stated their regret that the resolution established only a moral obligation. Padilla Nervo who introduced the resolution recalled that Mexico had proposed a draft treaty in June 1963. See United Nations Review, December 1963, p. 18.

the resolution "constitutes a recommendation on the part of the Assembly."<sup>1</sup> But Adlai Stevenson's discussion of the resolution as it was presented to the First Committee suggested the gap between a recommendation and a formal treaty. He reiterated the United States "firm endorsement" of the resolution, while leaving the door open for subsequent re-evaluation of the commitment

We recognize that it is not possible to foresee today all events which may at a future time occur in the newly emerging field of space technology and in the exploration and the use of outer space. Nor can we foresee fully the outcome of continuing efforts to achieve disarmament. Naturally, if events as yet unforeseen suggest the need for a further look at this matter, we would acquaint the United Nations with such events.<sup>2</sup>

The doctrine of rebus sic stantibus might be interpreted to justify repudiation of a treaty. But a declaration of intent was even less binding.

Soviet spokesmen seemed not to object to the lack of any legally-binding obligations in the General Assembly resolution on stationing weapons in outer space, despite the fact that throughout 1962 and 1963 Moscow had campaigned for a treaty on the legal principles governing the use of outer space, arguing against a mere declaration setting forth these principles.<sup>3</sup>

Despite the extremely limited commitment entailed by the resolution on space weapons, it has come to be widely termed a "ban" on bombs in orbit. Soviet representative Novikov, for example, in a speech to the First Committee spoke of "adoption by the General Assembly of a resolution prohibiting the orbiting of weapons of mass destruction...."<sup>4</sup> And

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<sup>1</sup>Address by ACDA Director William C. Foster before the Southwest Conference on Arms Control, October 31, 1963, in Documents on Disarmament, 1963, p. 571.

<sup>2</sup>Speech on October 16, 1963, ibid., pp. 536-537.

<sup>3</sup>Such a declaration was unanimously adopted by the General Assembly on December 13, 1963, after compromise by both the United States and the Soviet Union. Ambassador Fedorenko criticized the declaration because it established no firm legal obligations, a problem which, he added, "must of course be solved." He also noted, however, that the United States interpreted the declaration of principles as "reflecting" international law and stated that it would respect them. If the declaration were unanimously adopted, Fedorenko said, the Soviet Union would also respect its principles. For the declaration, see Documents on Disarmament, 1963, pp. 644-646; for Fedorenko's speech, see ibid., pp. 637-638.

<sup>4</sup>Speech of November 19, 1963, in ibid., p. 611.

William C. Foster spoke of a U.S.-Soviet "understanding" to keep the arms race from outer space, as if more than a statement of intent had been made by each side.<sup>1</sup>

What weapons did the General Assembly resolution encompass? Gromyko's speech of September 19 had referred to "objects with nuclear weapons on board," whereas U.S. statements usually discussed a broader object: any weapons of mass destruction. The resolution mentioned both categories, thus accepting the more comprehensive limitation advocated by Washington.<sup>2</sup>

What acts did the superpowers intend not to commit? They affirmed an intention "not to station in outer space any objects carrying nuclear weapons or other kinds of weapons of mass destruction."<sup>3</sup> Two forms of "stationing" were enumerated in the second part of the resolution: placing weapons in orbit around the earth and installing them on celestial bodies. These and other forms of "stationing" were presumably included under the U.S. and Soviet declarations of intent.

What relevance did these limitations have to the "global rocket" which Soviet officials had claimed to possess, since at least 1962? Was Moscow in effect now pledging not to use such a weapon? Probably there was no such implication, for the statements by Moscow and Washington that they would not station or place in orbit certain weapons seemed to refer to peacetime deployment rather than to actual launchings in war. To make the extreme point: there was no intimation that in wartime long-range missiles would not be used, even though they passed through outer space.

A more delicate issue was the provision in the last paragraph of the resolution against "causing, encouraging or in any way participating in the conduct" of certain activities. Did this mean that a state could not carry

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<sup>1</sup>Speech of October 31, 1963, in ibid., p. 571.

<sup>2</sup>Soviet spokesmen usually include chemical and bacteriological weapons among instruments of "mass destruction." (See U.S. editors' note to Sokolovskii, op. cit., p. 337.) Presumably the United States position on CBR weapons in space would be considered on its merits the question of whether they were "weapons of mass destruction."

<sup>3</sup>Emphasis added.

out research and development on space weapons? Strictly speaking that part of the resolution was mere exhortation, and established no legal obligations whatsoever. The meaning of this limitation would however become a sore point in 1965 when Moscow paraded what it termed "orbital missiles."<sup>1</sup>

It should be noted that neither side attempted to ban all military activities in space. The Soviet Union was herself ready now to orbit reconnaissance satellites and Soviet legal writers no longer condemned such activities.<sup>2</sup> Schlesinger goes so far as to state that the "least heralded but perhaps most important" area of U.S.-Soviet understanding on outer space in 1963 "was the tacit acceptance of reciprocal aerial reconnaissance from space satellites--the American Samos and the Soviet Cosmos. By supplying a partial substitute for organized international inspection, the satellites provided mutual reassurance and thus strengthened the system of stable nuclear deterrence."<sup>3</sup>

The fact that the great powers had chosen to record their understanding in a U.N. resolution which they could later ignore produced considerable resentment within the U.N. Secretariat. If Moscow or Washington chose to repudiate its 1963 "intention," the United Nations would appear the weaker. One U.N. official therefore attempted to draft a statement emphasizing the obligations inherent in a unanimously accepted U.N. resolution, suggesting that its breach would create a "threat to the peace" under the U.N. Charter. Both Soviet and U.S. representatives, however, objected strenuously to this formulation. Moscow, for its part, wanted the Secretary General to stress the resolution's contribution to the relaxation of international tensions.

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<sup>1</sup>See below, pp. 71-72, 84-86.

<sup>2</sup>For background, see Thomas W. Wolfe, Soviet Strategy at the Crossroads (Cambridge, Mass.: Harvard University Press, 1964), pp. 202, 208-209.

<sup>3</sup>Schlesinger, op. cit., p. 920.

U Thant's statement on the resolution hailed it as "one more step along the road" to general disarmament, but he stressed that it was significant for the United Nations because its adoption by the General Assembly

implies the acceptance by the Organization of the continuing political and moral responsibility for its implementation.

Thus, he endeavored to prevent the member-nations of the United Nations from eschewing all responsibility for their recommendations and resolutions.<sup>1</sup>

#### Significance of the Accord

To what extent could the signers of the U.N. resolution be assured that no power would station weapons in orbit? No on-site launch inspection was authorized, although many characteristics of space vehicles and their launch sites could be determined by aerial surveillance. As noted before, the "Saint" detection and interceptor program had been reoriented in late 1962 so that it would not become effective before 1968.<sup>2</sup> One U.S. authority stated in October 1963 that there was still no way to detect from the ground the presence of a nuclear weapon in a satellite. However any sudden change in the satellite "population" would be noticed. And study of a satellite's orbit would immediately show whether it constituted a threat.<sup>3</sup> The U.S. Arms Control and Disarmament Agency reported in January 1964 that United States space-tracking systems were able to detect launchings and devices in orbit.<sup>4</sup> But no claim was made of a capacity to identify the payloads of the space vehicles detected.

A clandestine deployment of weapons in space was thus unlikely, unless limited to a very small number. If one side did manage to station a significant number of space weapons without detection, their value for a surprise attack would be limited. True, a strike from space might afford less warning time than an ICBM launched from across the ocean, but the time advantage would hardly be greater than a strike from a submarine close to enemy shores.

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<sup>1</sup>Statement of October 17, 1963, cited in the United Nations Review, December 1963, p. 18.

<sup>2</sup>See above, p. 42.

<sup>3</sup>The New York Times, October 16, 1963, p. 3.

<sup>4</sup>Third Annual Report of the U.S. Arms Control and Disarmament Agency, January 16, 1964, in Documents on Disarmament, 1963, pp. 678-679. The Agency stated that it had entered a contract to study the verification problems of arms controls on bombs in orbit, and that the study had been completed before the October 1963 negotiations.

In any event the second-strike capacity of either superpower would continue to deter a first-strike, whether from outer space or closer to earth.

If a significant deployment of space weapons were carried out in secret, it would eventually have to be made public if the purpose were to enhance one's posture for political-military bargaining. But the utility of such a fait accompli would also be limited, since each superpower could continue to trust in its own second-strike deterrent.

As in any arms control accord, a fundamental restraint was the probability that violation by one side would be matched in kind by the other. The lead-time advantage for either superpower of being the first to station bombs in orbit would be small, since both powers' research and development programs would continue and because each would retain its second-strike capability. This restraint was probably keener for the Soviet Union, because experience showed that U.S. technological and economic power could rapidly overtake Russia even when the latter had a lead in some area due to earlier concentration of effort. But it was also in Washington's interest not to provoke the Soviet Union into an arms race in space, for the United States had a comfortable superiority in existing weapons systems and had no reason to want to complicate the equation in the balance of power. In particular it was in the U.S. interest to restrain Russia from entering a form of the arms race that lent itself to dramatic threats and bluffs, a game to which Russian leaders had shown a dangerous predilection.

Thus, the main assurance that neither Moscow nor Washington would station weapons of mass destruction in space was that such a move would not be in the self-interest of either superpower. "To the best of our knowledge Stevenson told the First Committee, "no weapon of mass destruction has ever been placed in orbit around the earth."<sup>1</sup> And the negative appraisal of such weapons made by Deputy Secretary Gilpatric in 1962<sup>2</sup> was reiterated by Mr. Foster in October 1963:

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<sup>1</sup>Speech of October, 1963, Documents on Disarmament, 1963, p. 537.

<sup>2</sup>See above, p. 41.

Present analysis indicates that [weapons of mass destruction in outer space] would be more expensive and less effective than conventional ICBM delivery systems. Moreover, once placed in space such weapons would constitute a permanent risk. There would always be a possibility that normal mechanical failure; collision with a meteorite; or interaction with unforeseen solar radiations might trigger it by accident.<sup>1</sup>

Did Moscow share this estimate? It seems likely that some political and military factions within the Soviet leadership opposed entering further arms control understandings with the United States; they may have particularly objected to arms controls in space, a domain where Russia had certain advantages. If such groups existed, however, the record suggests that their case did not prevail. The Kremlin continued to seek limited arms control arrangements with the United States in late 1963-1964 until Khrushchev's fall and escalation in Vietnam. Khrushchev's successors reduced the Soviet military budget for 1965, although it rose again in 1966 as part of an overall increase in the Soviet budget.<sup>2</sup> Both under Khrushchev and in 1965-1966 the Kremlin worked at increasing rapidly the number of Soviet ICBM's and submarine-based missile forces. This large capital investment did not necessarily mean that Russia had for all time renounced the stationing of bombs in orbit, but it was a sign that top Soviet leaders might well agree with U.S. estimates that weapons in space offered no major advantages over land- and sea-based forces. Moreover, as we shall see, Moscow continued in 1965 to stress its adherence to the 1963 General Assembly resolution on space weapons and in 1966 to campaign for a treaty barring bombs in orbit or on celestial bodies.<sup>3</sup>

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<sup>1</sup>Address of October 31, 1963, ibid., p. 571.

<sup>2</sup>See The New York Times, December 8, 1965, p. 1.

<sup>3</sup>Another oblique indicator that Moscow believed the main threat would continue to come from ICBM and submarine-based missiles was the limited deployment of anti-ballistic missile (ABM) defenses in Russia in 1964-1966, together with signs the Kremlin was considering a full-scale deployment. Such defenses would probably be obsolete if the superpowers embarked on extensive deployment of bombs in orbit.

Of what positive value, then, was the 1963 declaration of intent regarding space weapons? The U.S.-Soviet understanding was deprecated by some Western officials, particularly when comparing it with the nuclear test ban treaty. The latter was a legal commitment to halt an on-going operation of some genuine military interest, while the former merely registered the view of each superpower that space weapons were not necessary or feasible for the time being.

The primary advantage was succinctly stated by William C. Foster:

Without such an understanding we believe there would be a greater risk that an arms race in space might develop simply for prestige reasons, rather than because of any real military value.<sup>1</sup>

Both sides had the capability of placing bombs in orbit, but it would be cheaper and less dangerous not to up the ante in their confrontation. The motives in Moscow and Washington may not have been entirely symmetrical, but the interests of each party found common ground on the utility of keeping offensive weapons from outer space.

The fact that neither superpower insisted on sealing the agreement in principle on space weapons in a formal treaty could be criticized from the standpoint of world security, because each side remained free to continue research and development and to deploy space weapons at a later date, should it appear useful to do so. This argument however exaggerates the binding quality of a treaty. Even without a withdrawal clause (like that in the test ban treaty), treaties stand so long as the interests of the signatories are served by them.<sup>2</sup>

By settling for half a loaf rather than one, the supporters of the General Assembly resolution scored four victories for arms control and world security. First, a limited gain was made for the idea of preventive arms control. To a large extent the arms competition since 1945 had followed inexorably the thrust of technology and its rule, whatever is feasible ought to be built. Now, although both superpowers had a certain

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<sup>1</sup>Speech of October 31, 1963, in Documents on Disarmament, 1963.

<sup>2</sup>Soviet officials are reported to have cited this in July 1963 as a self-evident reason why a withdrawal clause in the test ban treaty would be superfluous, though they finally agreed to include one.

capability, they indicated that they would not exercise it, at least for the present. Such restraint might be useful in other areas as well, e.g., in the technology of anti-ballistic missiles.<sup>1</sup> Second, the faltering movement toward other arms controls and improvement in U.S.-Soviet relations received some sustenance, even if it proved insufficient to ride out the events of late 1964-1965. Third, however informal the U.S.-Soviet accord on space weapons, it helped to reinforce a growing pragmatism in Moscow, one that accepted the notion of limited but feasible measures, as opposed to general disarmament. Fourth, by restraining U.S.-Soviet arms competition in space informally, the option would be kept open for a formal treaty at a later point in time.

Soviet statements on the accord stressed its value for improving East-West relations, but took note of the long way to travel toward more radical measures of disarmament. They also stressed the catalytic role played in these developments by the "Moscow Treaty" on nuclear testing. Thus, Ambassador Fedorenko told the First Committee on October 16, 1963, that the partial test ban had afforded "a favorable atmosphere...for further steps toward disarmament and toward solving other problems awaiting solution." Adoption of the draft resolution on space weapons, he went on, would doubtless "be another step in relaxing international tensions and improving relations between peoples."<sup>2</sup> Later, after the adoption of the resolution, he called it "a new achievement in the cause of peace after... the Moscow Treaty." The resolution, he said,

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<sup>1</sup>The major comment on the U.N. resolution by Ambassador Adlai E. Stevenson reiterated again the idea that preventive arms limitations are more feasible than actual disarmament: "The resolution...does not require the cessation by Governments of any present activity. To the best of our knowledge, no weapon of mass destruction has ever been placed in orbit around the earth. Rather, this resolution calls for abstention....Certainly it would seem easier not to arm an environment that has never been armed than to agree to disarm areas which have been armed." (Speech of October 16, 1963, Documents on Disarmament, 1963, p. 536.)

<sup>2</sup>The New York Times, October 17, 1963.

constitutes a step to prevent the extension of the armaments race to outer space. The decision is not only concerned with celestial bodies, but also bears upon terrestrial matters, thus opening up one of the roads leading to general and complete disarmament.<sup>1</sup>

While some of Moscow's ostensible interest in GCD was no doubt motivated by propaganda considerations, the fact is that Soviet diplomats continued to emphasize vigorously the need for more sweeping measures of disarmament. Fedorenko, for example, warned against overestimating the results achieved by the test ban and space weapons accord, for they did not "put an end to the armaments race or prevent the danger of war."<sup>2</sup> Similarly, Novikov argued that after the Moscow Treaty and the resolution "prohibiting the weapons of mass destruction, it would be logical and reasonable to agree on the prohibition of the use of nuclear weapons." The United States, he complained bitterly, was frustrating such an agreement.<sup>3</sup>

Despite the apparent narrowing of East-West differences on arms control, including the question of weapons in space, the Kremlin continued to make a sharp distinction between banning weapons in orbit, on the one hand and, on the other, the total demilitarization of outer space and general disarmament. Thus, in the December 1963 debate on a declaration of legal principles governing exploration of outer space, Fedorenko stated that the Soviet Government did not and could not agree "with attempts to divorce the matter of the military uses of outer space from other measures linked to it." In a curious reversion to an earlier Soviet emphasis, Fedorenko declared:

...the prohibition of the military uses of outer space can be solved only in the context of disarmament, with parallel and simultaneous liquidation of foreign military bases on the territory of other countries.<sup>4</sup>

While this argument seemed somewhat atavistic after the October 1963 declaration on space weapons, there was no inconsistency: Moscow would not

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<sup>1</sup>Speech in the First Committee, October 30, 1963, Documents on Disarmament, 1963, p. 556.

<sup>2</sup>Ibid.

<sup>3</sup>Speech to the First Committee on November 19, 1963, ibid., p. 611.

<sup>4</sup>Statement to the First Committee, December 2, 1963, in ibid., p. 637.

promise to keep its ICBM's from penetrating outer space except in the context of general disarmament. This did not mean, however, that the Kremlin was reneging on its stated intention to refrain from stationing weapons in space.

## IV. CHALLENGES TO THE UNDERSTANDING, 1964-1966

"Orbital" Missiles

The viability of the U.N. resolution on stationing weapons in outer space was challenged by many forces from 1964 through 1966, but both superpowers continued to affirm their intention to abide by it. Both Moscow and Washington expressed doubts, however, as to whether the other was upholding its part of the understanding. The suspicions of each government fed not only on hard-line statements but also upon actions of the other side casting doubt on its long-term intention to keep weapons of mass destruction from outer space.

Both space powers were likely to accept in principle the underlying assumption of what has been called a "multiple symmetry model" of U.S.-Soviet relations:

In a protracted conflict, the opponents must employ the same means; if they do not, that side which fails to modernize these particular means to match those of the other side, all things being equal, is doomed.<sup>1</sup>

Particularly in the space race, some such assumption seems to have guided both Moscow and Washington. Unsure what military, political, economic or scientific benefits would result from huge investments in space research and technology, both superpowers have been reluctant to leave the field to the other party.

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<sup>1</sup>Jan F. Triska and David D. Finley, "Soviet-American relations: a multiple symmetry model," The Journal of Conflict Resolution, IX, No. 1 (March 1965), 37-53, quoted at p. 37, the authors' paraphrase of a theorem advanced by Eugene Dupreel in his Sociologie Generale (Paris: Press Universitaires de France, 1948). The theorem fails, however, in that not every action or operation by one side in the cold war has been matched in kind by the other. For example, the Soviet deterrent force has been quite smaller--and of a different nature--than the American. Indeed, Triska and Finley suggest that the United States should meet Soviet challenges "without striving to surpass them in such dimensions as...military weapons systems," while going on to initiate U.S. challenges "in more acceptable sectors."\* The theorem, however, seems particularly applicable to U.S.-Soviet competition in outer space, because it is precisely in this arena that it is difficult to perceive and react realistically to the feats of the adversary.

\* (Triska and Finley, loc. cit., p. 51.)

Hence the danger was that, despite the 1963 U.N. resolution, the Soviet Union and the United States would willy-nilly extend the arms race into outer space as each drove to exploit to the utmost the military possibilities of technology, stimulating an interaction chain that functioned as a self-fulfilling prophecy, demanding in the final analysis that each side match or exceed what it expected the other to do. Thus, military and political leaders in Moscow and Washington often spoke of their strategic and space capabilities in a provocative manner. If they did not claim for themselves a military advantage in space, they described the terrestrial balance of power in terms which implied the adversary would be well advised to look to outer space for means to improve his military posture. Alternatively, strategic analysts described the foe's military space programs in a way that implied countermeasures were required to overtake and surpass the enemy at his own game.

On the Soviet side, there was Khrushchev's boast (shortly before his ouster) to a visiting Japanese parliamentarians that Russian scientists had developed a "monstrous new weapon" capable of destroying all humanity.<sup>1</sup> Then, immediately after his downfall, the new regime staged on the anniversary of the Bolshevik Revolution what many observers called the most impressive military parade seen for years in Red Square. For the first time the Kremlin displayed an intercontinental ballistic missile, as well as what it called an anti-missile missile. An accompanying speech by Defense Minister Malinovsky denounced Secretary McNamara by name, while TASS released a Chinese statement calling for Communist unity that would make the United States and other imperialist powers "shudder."<sup>2</sup>

The military parades across Red Square in May and November 1965 were still more ominous, and raised directly the question of whether Moscow intended to abide by the 1963 U.N. resolution on space weapons. The Kremlin displayed on both occasions a number of weapons, including a liquid-fueled, three-stage rocket described by TASS as an orbital missile "capable of delivering a surprise blow on the first or any other orbit around the earth."<sup>3</sup>

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<sup>1</sup>The Christian Science Monitor, September 16, 1964, pp. 1, 6.

<sup>2</sup>The New York Times, November 8, 1964, pp. 1, 3.

<sup>3</sup>The New York Times, May 10, 1965, p. 1; November 9, 1965, p. 5; Moscow cooperated by giving data on the missile to Jane's All the World's Aircraft, 1965-1966 (New York: The McGraw-Hill Book Co., 1966), p. 446.

A June 1965 issue of the popular magazine Ogonek declared that:

The basis of the fighting power of the armed forces of the Soviet Union is rocket troops of strategic designation.

At their disposal they have ballistic rockets of medium, intercontinental range, and orbital range.

The article did not clarify, however, how the orbital rockets would be used, e.g., whether they were to be fired from a satellite or whether they were the same "global" rocket Soviet spokesmen had claimed in 1962.<sup>1</sup> Some Western analysts doubted that the Soviet rocket was being mass produced;<sup>2</sup> others have doubted that it has the launching capability claimed for it by Moscow;<sup>3</sup> some questioned whether the craft could even fly. There was greater interest among Western analysts in a second rocket exhibited in 1965 which the Russians claimed was mobile, solid-fuel ICBM. This claim too was discounted, however, because Air Force experiments showed that a railroad-based ICBM would double the cost of the Minuteman missile and be much less accurate than one fired from a silo.<sup>4</sup> Perhaps the greatest concern among Western analysts arose from Soviet claims to have an operational anti-ballistic missile (ABM) system. Western analysts could not agree whether Moscow had made only a limited, perhaps token ABM deployment in 1963-1966, or whether Moscow was proceeding on a large-scale

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<sup>1</sup>The Christian Science Monitor, June 23, 1965. As indicated in Chapter V, when an East German listing of Soviet missiles in 1966 distinguished orbital, global, intercontinental, and medium-range rockets.

<sup>2</sup>The Christian Science Monitor, November 11, 1965.

<sup>3</sup>The three-stage rocket (code-named Scrag) and another liquid-propelled but two-stage rocket called Sasin were said by Russian spokesmen to be akin to vehicles used to launch the large manned spacecraft weighing more than 10,000 lbs. According to one analyst, it is obvious that neither Scrag nor Sasin possesses such a capability. See Henry T. Simmons, "The Soviet Space Program," Space/Aeronautics, Vol. 44 (December 1965), p. 56.

<sup>4</sup>This vehicle was code-named Savage. See "U.S. Doubts Red Missile Boasts," The Christian Science Monitor, November 11, 1965, p. 10c.

program that would substantially alter the effect of a U.S. second-strike.<sup>1</sup> Unquestioned, however, was the fact that the Soviet Union had greatly increased the numbers of its ICBM and submarine-rocket forces, cutting the U.S. lead in long-range missiles from a 4:1 to closer to a 3:1 ratio.<sup>2</sup>

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<sup>1</sup>For a report on divided opinions among U.S. analysts, see The New York Times, June 9, 1966, p. 11.

Soviet theorists have rejected U.S. arms control arguments that ABM systems could lead to an upward spiral in the offensive arms race. And Soviet leaders have frequently boasted of their ABM capability. See e.g., N. Talensky, "Anti-Missile Systems and Disarmament," International Affairs, No. 10 (October 1964), pp. 14-19, published simultaneously in Mezinarodni politika (Prague) and in Bulletin of the Atomic Scientists, February 1965, pp. 26-29. As early as 1961 both Khrushchev and Malinovsky boasted that Soviet scientists had solved the problem of destroying missiles in flight. (Izvestia, September 9, 1961; Pravda, October 25, 1961.) In May 1965 Soviet television viewers saw the firing of an ABM and its interception of an ICBM at an unspecified altitude, as well as scenes showing installations of ABM defenses including testing stations, computer centers, and launch sites. Western observers, however, believed the television film did not show recent developments but rather tests of at least three years earlier. (The New York Times, May 11, 1965.) Shortly thereafter, on August 7, 1965, the East German National Zeitung (p. 6) printed a photo of a Soviet anti-missile missile and asserted that Soviet ABM technology is superior to American. Also in August 1965 the commander of the Soviet anti-aircraft defense corps noted that the U.S.S.R. has "adequate means to detect and destroy any aircraft of any size and at any altitude, even the lowest ones." He granted however that it was "extremely difficult to detect in time aircraft at heights of 50 to 100 meters." (Air Vice Marshal Vladimir Sudets, interview in Nedelia reported in The Washington Post, August 15, 1965.) And in September 1965 a leading Soviet military journal printed an article that argued: "Victory in war is determined not merely by the character of weapons but by the relationship of forces of the combatant sides.... It is possible that new means of war, capable of reliably parrying the enemy's nuclear strikes, will be developed." From these and related assumptions, the author challenged the view often expressed in both the West and the Soviet Union that general war cannot be "won" in any meaningful sense. (Lt. Col. E. Rybkin, "War and Policy," Kommunist Vooruzhennykh Sil, excerpted in Survival, VIII, No. 1 [January 1966], pp. 12-16.) For Western analyses, see Wolfe, op. cit., pp. 189-199; Fritz Ermarth, "The ABM Decision," Radio Free Europe Research, Communist Area, Munich, December 8, 1965, mimeo; Walter F. Hahn and Alvin J. Cottrell, "Ballistic Missile Defense and Soviet Strategy," Orbis, LX, No. 2 (Summer 1965), pp. 316-317.

<sup>2</sup>Washington reported in 1966 that Moscow was placing increasingly heavy emphasis on the submarine-launched portion of its nuclear arsenal. Of almost 400 Soviet long-range missiles, 120 were believed to be carried in submarines (10 of them nuclear-powered, 35 diesel-powered). By contrast the United States had 1,480 long-range missiles, 576 of the Polaris type being carried in 36 nuclear-powered submarines. See The New York Times, June 9, 1966, p. 10. Compare with the annual reports, The Military Balance, issued late each year by the Institute for Strategic Studies in London.

Nor did Western analysts dispute the Soviet claim made late in 1965 that Russia had twice that year used the world's most powerful rocket to put into orbit the heaviest payloads ever launched.<sup>1</sup>

A recentralization of the Soviet defense ministries in March 1965 suggested to some observers that the Soviet marshals might be having more influence under the Brezhnev-Kosygin regime than they enjoyed under Khrushchev. A decree of the Presidium of the Supreme Soviet converted the "state committees" for aircraft, defense technology, radio shipbuilding, electronics and medium-machinery into full-fledged ministries.<sup>2</sup> This decree removed management of these activities from the control of the regional industrial councils established by Khrushchev in 1957. (Unlike the other industries affected in 1957, medium-machine building, a euphemism for nuclear weapons industry, had remained under the control of the Central State Committee.) It was not clear, however, whether this recentralization reflected primarily political or military criteria, or was merely part of a general reshuffling of the Soviet economic structure in the interest of efficiency. Khrushchev's successors had cut the military budget for 1965 in December 1964, but they increased it by 5 percent for 1966--perhaps to "match" stepped-up U.S. spending due to the Vietnam war, but also as part of an across-the-board increase in the Soviet budget.<sup>3</sup> On the other hand one U.S. study showed a steady upward curve in Soviet expenditures on research, development, testing, and evaluation in military and space activities, overtaking and surpassing U.S. investment in these areas (which remained relatively stable) in 1964.<sup>4</sup>

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<sup>1</sup>Professor Georgi Petrovich disclosed in the November 1965 issue of Aviatsiia i Kosmonatika that two spacecraft in the Proton series had been launched by rocket boosters capable of generating more than 60 million horsepower. Such power requires rocket engines that develop about 3 million pounds of thrust at liftoff, as compared with the 2.4 million pound thrust produced by the United States' Titan 3-C, thought to be the world's most powerful rocket when it made its maiden flight in June 1965. See The New York Times, November 14, 1965, p. 74; for a slightly more skeptical appraisal, see Simmons, loc. cit., pp. 56-57.

<sup>2</sup>The New York Times, March 4, 1965, pp. 1, 3; also Paul Wohl, "More Soviet Guns," The Christian Science Monitor, May 8, 1965.

<sup>3</sup>See Bloomfield, Clemens, Griffiths, op. cit., p. 226.

<sup>4</sup>This study found it impossible to distinguish R, D, T & E in defense from that on space activities. It reportedly "corrected" for conversion difficulties in comparing U.S. and Soviet outlays.

### Military Men in Orbit

Regardless of the facts about Russia's rocket capabilities and intentions, powerful voices in the United States became increasingly articulate in calling for active measures to strengthen U.S. defenses, including a dynamic role for the military in space.

The U.N. resolution on stationing weapons in space was denounced immediately after its adoption by the man who became the Republican candidate for President in 1964. On October 17, 1963, Senator Goldwater termed the resolution a "usurpation" of the Senate's treaty powers and an "assault" on the U.S. "bulwark against Communist domination."<sup>1</sup> In part to counter such criticisms President Johnson revealed on September 17, 1964 that the United States had already installed two systems for intercepting and destroying armed satellites in case the Soviet Union violated the 1963 understanding.<sup>2</sup> Pressure on the administration nevertheless continued from many sides. As General Curtis LeMay retired from the Air Force, the former director of the Strategic Air Command declared early in 1965, the United States would leave herself open to enemy attack unless she became capable of using military weapons in space.

Developing military capabilities is a task that I think we ought to accept as an unavoidable requirement....[Man] will undoubtedly discover uses for space systems over the years ahead that go far beyond the observation and inspection functions we envision at this time.<sup>3</sup>

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<sup>1</sup>Quoted in Lester A. Sobel (ed.), Space: From Sputnik to Gemini (New York: Facts on File, Inc., 1965), p. 227.

<sup>2</sup>Johnson added that the United States did not intend to place satellites with warheads in orbit and that "we have no reason to believe that any nation plans to put nuclear warheads into orbit." McNamara explained on September 18 that the two systems represented an adaptation of the Nike-Zeus anti-missile system and the Thor rocket. The Defense Secretary said the two systems had been "effectively tested" and were "operational." The President also announced that the United States was installing a radar system that could "bend" around the earth's curvature so as to detect missile firings almost as soon as they occurred. (Hitherto military radar had been limited to line of sight operations.) Ibid., p. 263; also The Christian Science Monitor, September 19, 1964; also the President's annual report to Congress on U.S. space activities, January 27, 1965.

<sup>3</sup>See interview in The Christian Science Monitor, February 2, 1965.

Many military (but not necessarily civilian) officials at the Defense Department were reported in 1965 to be increasingly anxious about what they believed to be a substantial Soviet lead in the strategic uses of space, a concern that heightened sharply when a Russian cosmonaut floated outside his spaceship on March 18. While NASA focused on landing a man on the moon, Pentagon officials worried about Russia's winning control over areas 100 to 600 miles above the earth. Air Force planners, it was reported,

envision men in reconnaissance vehicles, in satellite interceptors, in nuclear dreadnaughts able to fire down on earth targets. Men are counted on to run elaborate command posts in space, control entire fleets of space weapons.

...Many believe that the most likely way the growing stalemate in nuclear missiles will finally be broken is by the development of space-based weapons.

Top civilians in the Pentagon, however, were said to believe there was no clear-cut mission in space for the mission. Hence Secretary McNamara's cancellation of the DynaSoar manned space glider late in 1963 and his slowness in getting a substitute program Manned Orbiting Laboratory (MOL) off the ground.<sup>1</sup>

Similarly, the House Government Operations Committee warned on June 4, 1965, that Russia was "substantially ahead" of the United States in military space developments. The Voskhod launchings of October 1964 and March 1965 were cited as evidence. The Committee called for full-scale development "without delay" of the Pentagon's MOL project. While it was appropriate for NASA to operate the Apollo moon program, the Committee argued, it should be the Pentagon's task to develop the manned laboratory for military reasons. The Voskhod launched in October 1964, the report stated, "was in certain respects a manned orbiting space station. Three men were in orbit for 24 hours, and they conducted experiments that we have yet to do."<sup>2</sup>

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<sup>1</sup>U.S. News & World Report, LVII, No. 14 (April 5, 1965), p. 34.

<sup>2</sup>The New York Times, June 4, 1965. For whatever reasons, political or technical, Krasnaia Zvezda in June 1965 published a number of articles criticizing the Soviet Rocket Forces for various shortcomings. Some commanders were accused of conducting training exercises "as though combat moves will be made only by one side and the 'enemy' will either be idle or will display a passivity that will be to the trainee's advantage." See The Christian Science Monitor, June 20, 1965.

A major U.S. space achievement followed immediately upon publication of the Committee's report and gave strength to its main argument: that the time had come to press ahead with investigation of the military utility of a man in space. On June 3 a Gemini capsule was launched from which Major Edward H. White made a twenty-minute "walk in space," propelling himself about with a gas-firing jet gun. This feat, like the excursion of Lt. Col. Aleksei A. Leonov in March 1965, suggested that there was indeed a specific utility to having a man in space as contrasted with unmanned satellites. A man might be essential to build space platforms, to assemble maneuverable vehicles, and to employ the discrimination and judgment best exercised by the human mind. A manned vehicle might be needed to distinguish another satellite, identify enemy satellites, to discriminate between a satellite with a lethal weapon and one with a nonlethal payload, and--if necessary--to capture, neutralize, or destroy the enemy satellite.<sup>1</sup> At any rate the feasibility of manned maneuvers outside the satellite had been demonstrated, and this increased the pressures for investigating further his actual utility in carrying out such operations.

In August 1965 the two pilots of Gemini 5 broke the U.S. and Soviet record for hours in orbit. Their flight pointed again to the specific value of man in space. With eyes, cameras, and infrared sensors they spotted missile firings, aircraft, naval ships, and other items of possible military interest. Their assistance was critical in solving a fuel-problem that otherwise might well have ended the mission.<sup>2</sup>

On August 25, part-way in the course of Gemini 5's eight days in orbit, two important statements were issued, one in Moscow, one in Washington. The Soviet military newspaper Red Star charged that the basic function of the Gemini program was not preparation for a moon landing. Rather, it argued, "the main purpose is testing the capability of intercepting artificial satellites and conducting reconnaissance from space." In what could have been a message to Moscow's political hierarchy, the military organ declared that "the bosses in the Pentagon don't hide the fact that the piloting of a cosmic ship can hold the key to strategic domination of cosmic

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<sup>1</sup>See the analysis by Hanson W. Baldwin, "Space and Defense," The New York Times, June 5, 1965.

<sup>2</sup>The Christian Science Monitor, August 26, 1965.

space." As early as 1956-1957, the article went on, the Pentagon had laid plans for military space ships, but responsibilities had been divided so that NASA worked on scientific-technological base for military activities in space while the military departments developed concrete strategic applications. Red Star suggested further that the two U.S. astronauts might well be occupied taking pictures of installations in Communist countries. It noted:

The spaceship will pass 11 times over Cuba, 16 times over Vietnam, 40 times over the Chinese People's Republic....It suffices to say that of the 17 experiments programmed for the flight, six were planned by the Defense Department and are top secret.

Red Star noted that a modified version of the Gemini capsule was to be used as a vehicle for astronauts between earth and the Manned Orbital Laboratory<sup>1</sup>--the subject of an announcement by President Johnson the same day as the Soviet article.

As Gemini 5 continued to orbit, President Johnson ordered the Defense Department to proceed immediately with construction of a two-man orbiting laboratory to determine man's usefulness in space. The project, assigned to the Air Force, was expected to cost \$1.5 billion, with the first of five month-long flights scheduled for 1968. Aware of Soviet sensitivities about military overflights of the U.S.S.R., President Johnson reiterated U.S. interest in extending the rule of law into outer space. Referring obliquely to the 1963 U.N. resolution, Mr. Johnson stated:

We intend to live up to our agreement not to orbit weapons of mass destruction and we will continue to hold out to all nations, including the Soviet Union, the hand of cooperation in the exciting years of space exploration which lie ahead for all of us.

To further demonstrate his desire for cooperation in space, the President announced that top-ranking Soviet scientists were being invited to witness the next Gemini launching in October, 1965.<sup>2</sup>

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<sup>1</sup>Engineer-Major I. Vereshchagin, "Gemini and the Aims of the Pentagon," Krasnaia Zvezda, August 25, 1965.

<sup>2</sup>The New York Times, August 26, 1965.

A similar offer to observe the Mercury manned spacecraft program had been rejected earlier by Moscow, perhaps because of Soviet unwillingness to reciprocate. The President's invitation to observe the Gemini launch, therefore, deliberately avoided any mention of reciprocal visits. A sign that the President's August 25 proposal was well received by at least some Soviet authorities came on September 2, 1965, when Pravda published a long article by Academician Sisakian calling for more international cooperation in space and congratulating U.S. scientists on Gemini 5. This line did not triumph, however, for the President of the Soviet Academy of Sciences, M. V. Keldysh, sent James E. Webb a polite rejection on September 8. "Soviet scientists," Keldysh wrote, "positively evaluate cooperation between our countries in the study of cosmic space for purposes of peaceful use. However at the present time our representative cannot avail himself of your invitation." In a different spirit from Red Star, nevertheless, Keldysh congratulated the astronauts, scientists and engineers "who took part in the preparation and execution of the flight of the space ship Gemini 5."<sup>1</sup> There was, of course, a qualitative security distinction between various kinds of space cooperation, and on October 13 the Soviet Union and United States reached two agreements: (1) a reaffirmation of the existing plan to exchange data from their weather satellites; and (2) an agreement on the preparation and publication of a joint review in space biology and medicine.<sup>2</sup>

Despite the assurances of the President and various government press releases that the MOL was not meant for aggressive purposes, and did not conflict with the 1963 General Assembly resolution, many Western as well as Communist writers criticized the project for opening the door to an arms race in outer space. An essay by Harry Schwartz predicted that historians might "conclude that this Presidential decision was even more important"

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<sup>1</sup>The New York Times, September 9, 1965, p. 11.

<sup>2</sup>The latter accord provided for the establishment of a joint editorial board and for full cooperation by both sides in the preparation of materials available in the two countries, the selection of authors, and the publication of their work, probably in two or more volumes. (The Baltimore Sun, October 14, 1965, p. 16.)

than the Gemini 5 flight. Why, Schwartz asked, did the President make the announcement at the very moment when Soviet propaganda was already attacking Gemini 5 as a venture in space espionage?

Moreover by underlining the potential military significance of space, the President may have finally ended any last lingering hope that there might be a joint Soviet-American program for sending a man to the moon or to some more distant objective in the solar system.

Immediately after the President's announcement, Schwartz noted, several East European newspapers warned that the Soviet Union could hardly fail to try to obtain similar military capability in space.

Would it not have been wiser, he concluded, to have let NASA carry out the MOL assignment, for scientific purposes and for military contingencies? If it turned out that enemy states were actively exploiting space for military purposes other than intelligence collection, the U.S. Defense Department could then make use of the capability developed by NASA.

Such a course might have kept Washington from bearing the onus of seeming to start an arms race in space, while giving more time to exert pressure on Moscow for cooperation rather than rivalry in the new dimension of human activity.<sup>1</sup>

Isolated Soviet statements on the MOL could not be taken as a firm indication of Moscow's position, but one of the first Soviet responses to Johnson's announcement implied a wish to guide Soviet policymakers as well as to rebuke Western. The Deputy Commander-in-Chief of Soviet strategic rocket troops contended that the Pentagon intended to develop a platform from which to bombard the earth with nuclear bombs--which, he added, "does not tally with Johnson's hypocritical announcement about extending the reign of law to outer space."

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<sup>1</sup>"MOL: The New Race in Space," The New York Times, September 13, 1965. Similar criticisms appeared in The Saint Louis Post-Dispatch, September 9, 1965, p. 13; The New Republic, September 11, 1965 and November 27, 1965; in a column by Marquis Childs, The Washington Post, September 31, 1966, p. A22; and in an anticipatory essay by Leonard E. Schwartz in The Christian Science Monitor, March 2, 1965. Favorable appraisals appeared in Business Week, September 4, 1965, p. 8; William Beecher, "New Russian Weapons Spur U.S. to Explore Military Use of Space," The Wall Street Journal, November 22, 1965; and in "MOL at Last," Omaha World-Herald, August 27, 1965.

Further, in a viewpoint that Moscow later overruled, the same author suggested that the very development of the MOL "leads to a definite breach of the agreement on non-orbiting of weapons of mass destruction," because "the concept of nuclear weapons covers both carriers and the warheads proper."<sup>1</sup>

That this line might not prevail was suggested to some observers at the United Nations when Soviet representatives to meeting of the Legal Subcommittee of the U.N. Committee on the Peaceful Uses of Outer Space failed in September 1965 to denounce the MOL. Indeed, later that month Moscow disclosed that it too would put up an equivalent vehicle. Cosmonaut Alexei Leonov told the 16th International Aeronautical Congress meeting in Athens that a permanent manned space platform was the next major project in the Soviet space program.<sup>2</sup> Unlike Washington, Moscow did not specify that its platform would be for experimental military purposes. It was subsequently reported, however, that one of the reasons President Johnson ordered the Air Force to proceed with the MOL was that intelligence indications suggested the Soviet Union was already well advanced in developing such a spaceship.<sup>3</sup>

That Moscow was indeed moving in this direction was suggested by an article in Red Star early in 1966, entitled "Now--To An Orbiting Station." While the article did not specify that such a station would have military applications, this seemed to be implicit--not only because of the author's position,<sup>4</sup> and the vehicle of publication, but also because of the article's contents. It discussed in a matter of fact way, for example, the problems involved in extra-vehicular activities, one of which involved armed satellites:

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<sup>1</sup>Part of his analysis, it should be noted, was based on an essay in the distinguished West German newspaper, Die Welt. See Col. Gen. Vladimir Tolubko in Za rubezhem, September 1965; see also the article by East German Julius Mader, "U.S. Militarist Plans in Space," International Affairs (Moscow), XI, No. 8 (August 1965), pp. 54-58.

<sup>2</sup>Leonov added that after "many space laboratories" had been established, "with crews periodically changed," the Soviet Union expected to give attention to "a spaceship to the moon, and a landing on the moon." See the editorial, "Space Plans and Defense," Philadelphia Inquirer, September 19, 1965; also The Washington Post, September 17, 1965, p. A3.

<sup>3</sup>The Christian Science Monitor, October 13, 1965.

<sup>4</sup>General Major Engineer-Technical Service, Georgi I. Pokrovsky, Professor at the Zhukovsky Military Air Engineering Academy, Doctor of Technical Science.

...imagine that two enemy ships are flying parallel courses and are shooting at each other. In this case the shells will not fall on the target. They will come back and it is not impossible that they could hit the ship from which they are shot. There is a paradox for you.

The author did not explicitly recommend the arming of satellites, but he concluded on the note that "cosmonautics of our days had already solved a series of problems connected with manneuvres in space." Hence, the agenda for cosmonauts in the twentieth century would include a series of steps in succession:

The meeting of ships in space, assembling in orbit large inhabited stations, and the building of cosmic "railway stations" from which will go into deep space "interplanetary long distance trains"....<sup>1</sup>

A subsequent article in Red Star again assailed what it viewed as a contradiction between the President's assurances that the United States intended to adhere to the 1963 understanding on weapons in space and his transfer of authority over the MOL to the Pentagon. Citing many Western periodicals,<sup>2</sup> Red Star concluded that the Western press viewed this shift of responsibility from NASA to the Defense Department as "the birth of the era of military cosmonautics." The Soviet article commented sarcastically:

Trying to enoble these plans [for the MOL], the American press puts out the argument that it is necessary "to make a distinction between aggressive and simply (!) military sputniks, for it is evident that the basic purpose of the MOL is to collect reconnaissance information.

With apparent revulsion, the article also observed:

It appears that military espionage from the cosmos is a permitted action in relation to countries with which they maintain normal diplomatic relations!

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<sup>1</sup>Krasnaia Zvezda, February 12, 1966.

<sup>2</sup>The following periodicals were cited, but usually without reference to specific articles or dates: Air Force, Aviation Week, Missiles and Rockets, Army, Astronautics, and U.S. News & World Report.

Since Moscow's satellites had been carrying out reconnaissance missions for several years, Red Star's indignation was probably not to be taken seriously.

More significant, perhaps, was Red Star's conclusion that "the strategists from the Pentagon must realize that they are making a step toward madness."

Of course, one cannot approach the question of the creation of piloted space ships so simply as is done by a few Western observers, who very much want that "the MOL station might be able to drop nuclear bombs." The unscientific vulgarization of such a serious business is intolerable. However, one cannot escape the fact that all these "purely military" apparatuses which are the carriers of means of mass destruction, nuclear, chemical, bacteriological, and other.

We notice that the further the development goes on American cosmic apparatuses, the more the dividing line between their "peaceful" and "military" designation is erased.<sup>1</sup>

It seems fair to conclude that in 1964-1966 both Moscow and Washington did much to encourage mutual suspicions that arms control in space was a utopian chimera. Repeated Soviet claims of an "orbital missile," even if it were only in limited production--combined with signs that both sides would soon test the military uses of manned orbiting laboratories--suggested that the 1963 "intention" not to station weapons of mass destruction in space might soon be revised. Parallel with these portents, however, other developments occurred in the East-West dialogue, indicating that the declarations of intent might not only be observed for some time but might even be converted into a bilateral or multilateral treaty.

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<sup>1</sup>General Major of Aviation, B. Teplinsky, retired, "The Strategy of Cosmic Adventures," Krasnaia Zvezda, April 23, 1966.

## V. COUNTERVAILING RESTRAINTS, 1964-1966

Despite the parading of so-called orbital missiles across Red Square and the announced plans of both superpowers to orbit manned stations, the future of outer space remained open-ended. Options were not yet closed. Although Moscow and Washington sought to exploit outer space for certain propaganda and strategic values, neither seemed anxious to convert this domain into the locus of a full-fledged arms race. If only implicitly, each superpower seemed to recognize the utility in maintaining or extending the principle of preventive arms control in outer space.

While Moscow and Washington questioned one another's motives in outer space, neither side definitively accused the other of overthrowing the 1963 U.N. resolution on weapons in space. To be sure, U.S. spokesmen issued a firm protest after the Kremlin paraded its orbital missiles. The State Department demanded to know whether Moscow meant to abide by its 1963 declaration of intent. Preferably, Washington indicated, the Soviet Union should publicly reaffirm its earlier position.<sup>1</sup>

Considering the seriousness of the American inquiry and the complexity of the problem, Moscow reacted with impressive dispatch. Soviet Ambassador Dobrynin visited the State Department on December 8, 1965 to reaffirm his government's support of the 1963 declaration. His clarification, it was reported, followed the lines of an article entitled "False Doubts", appearing over the authoritative signature of "Observer" in Pravda, on the next day, December 9, 1965. The State Department, Pravda asserted, had not the slightest grounds for intimating that the Soviet Union had violated the U.N. resolution or that it did not intend to adhere to it in the future. Pravda noted that the General Assembly resolution called upon states to refrain from stationing atomic weapon carriers in outer space, but the "Observer" article registered an important distinction: It held that the resolution did "not apply to the production of orbital rockets, or, for that matter, to any other rockets launched into space".

The article defined Moscow's future plans in this way:

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<sup>1</sup>In response to queries, the State Department stated on November 8, 1965, that it was studying Moscow's claims to possess an orbital missile "with care" and at "fairly high levels throughout the government". See The New York Times, November 9, 1965, p. 5; also The Baltimore Sun, November 18, 1965.

The Soviet Union regards the recommendations contained in the General Assembly resolution...as most important; it fulfills them and will observe this resolution in the future, having in view that other governments will act in the same way.

But Pravda again stated the Soviet view of the dependency of arms control and cooperation in outer space on terrestrial disarmament. The Soviet approach to the U.N. resolution, "Observer" declared,

is dictated by the peace-loving character of the foreign policy of the Soviet Union, her decisive and consistent struggle for the liquidation of all types of rocket-nuclear weapons, for the achievement of general and complete disarmament, which would ensure the use of outer space exclusively for peaceful purposes.

"Observer" declared that the United States knew of Moscow's peaceful intentions, but sought by protesting the Soviet orbital rocket to divert attention from the U.S. space program. From the outset, U.S. activities in outer space had been subordinated to the idea of "the mastery of space for military purposes," an attitude exemplified most recently, the article stated, by the announcement of the MOL project.

As for the military equipment demonstrated in Red Square, Pravda concluded, its purpose was not to threaten anyone. Moscow's nuclear rockets were merely a "powerful means of guaranteeing peace."<sup>1</sup>

These explications of the Soviet position seemed to satisfy the State Department,<sup>2</sup> which since 1963 had accepted the view that the resolution did not bar development but only the deployment of space weapons. Indeed, as noted earlier, the U.N. resolution consisted of two parts, one which welcomed statements of intent by Moscow and Washington, and a second part, exhorting all states to refrain from stationing weapons in space or from "encouraging or in any way participating" in such activities.<sup>3</sup> Given a broad or narrow interpretation, these paragraphs did not constitute a pledge to refrain from production of weapons which, if orbited, would violate the 1963 declarations of intent.

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<sup>1</sup>Pravda, December 9, 1965, p. 5.

<sup>2</sup>See The New York Times, December 11, 1965, pp. 1, 4. After Dobrynin's visit the State Department announced that the Eighteen-Nation Disarmament Committee would reconvene on January 27, 1966.

<sup>3</sup>See above, pp. 59-60.

Washington's acceptance of Moscow's clarification regarding Soviet intentions in outer space appeared to be part of a larger strategy designed to contain and, if possible, reverse the deterioration in U.S.-Soviet relations in 1965-1966 due to escalation in Vietnam, changes in U.S. and Soviet top leadership, and other factors. If rapport could be maintained with the Kremlin on arms control, perhaps other problems could be compartmentalized. But for negotiations to make progress on such issues as nonproliferation, previous arms control accords would have to be maintained. Indeed, their observance would be important merely to keep U.S.-Soviet tensions from growing more acute.

The U.S. interest in "not rocking the boat" on previous arms control accords led Washington to play down possible Soviet violations of two other agreements reached in 1963-1964. The first possible breach occurred early in 1965 when a Soviet underground nuclear test "vented," probably carrying radioactive material beyond Soviet frontiers--technically a violation of the 1963 test ban treaty. Moscow's response to U.S. inquiries was to deny that such an event had occurred, and since the venting was probably not deliberate, the State Department did not carry its protests further. Another possible violation was more difficult to prove or disprove from abroad. Some U.S. officials doubted, however, that the Soviet Union had in fact reduced substantially the production of uranium-235 for nuclear weapons, as Khrushchev had promised to do in a statement issued simultaneously with similar declarations by the United States and the United Kingdom in April 1964.<sup>1</sup>

The United States was concerned not only with the political consequences of arms control, but also with its potential for containing the arms race. This awareness was seen particularly vividly as the Defense Department in 1965 refused to give in to mounting pressures to begin immediate deployment of an anti-ballistic missile defense system. While many considerations affected the administration's approach to this problem, including economic and feasibility factors, the Defense Department appeared

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<sup>1</sup>Texts in Walter C. Clemens, Jr. (ed.), Toward a Strategy of Peace. (Chicago: Rand McNally & Company, 1965), pp. 214-218.

hopeful that it could avoid a measure that would contribute unnecessarily to another upward spiral in offensive arms competition.<sup>1</sup>

Similarly, the United States appeared anxious to ensure that the deployment of military personnel in space for support activities such as reconnaissance did not automatically lead to an unbridled race to put major weapons systems into space. Thus, while announcing plans for a MOL, Washington took pains to reiterate its determination to adhere to the 1963 resolution of the General Assembly. Ambassador Goldberg, probably in response to widespread concern over the MOL, reassured the United Nations that U.S. "space activities have been, and will continue to be, non-aggressive, and peaceful and beneficial in character."<sup>2</sup>

It was also reported that the U.S. Government--or at least some influential portions of it--agreed to allow the Air Force to develop an orbiting laboratory only after being persuaded that the MOL's peacekeeping potential outweighed the possible negative international repercussions from putting the military into manned spaced flight.<sup>3</sup> True, the time was hardly propitious for the United Nations to take over a MOL program to carry out its own arms control inspection operations.<sup>4</sup> But the MOL could provide an effective means of national inspection by which each great power could be assured that its adversary was not putting weapons into orbit or, more generally, conducting operations that would upset the balance of power or mount a surprise attack. From this point of view it might even be in the U.S. interest that Russia develop an effective space observation system in order that Moscow could remain assured that U.S. activities in space were non-lethal.<sup>5</sup>

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<sup>1</sup>See The New York Times, December 1, 1965, p. 1; January 25, 1966, p. 10.

<sup>2</sup>U.N. Doc. A/PV. 1334, September 24, 1965, pp. 42-45.

<sup>3</sup>This judgment, it was reported, was made at a meeting of the National Aeronautics and Space Council, chaired by Vice President Humphrey, which discussed 25 detailed questions about the impact of the MOL on arms control and the arms race. (Howard Simons and Chalmers M. Roberts, "Role in Arms Control Clinched MOL Victory," The Washington Post, September 5, 1965, pp. 1, 5.)

On the other hand, it was generally acknowledged that the origin of the MOL lay in Secretary McNamara's desire to provide a sop for the Air Force when he decided to cancel its DynaSoar orbital glider program late in 1963. (Ibid.)

<sup>4</sup>See below, pp. 112-113.

<sup>5</sup>For further discussion, see below, pp. 111-112.

Both sides, it seemed, were keeping their powder dry. NASA director James E. Webb stated in March 1965 that he saw no evidence that Moscow was committed to any definite military role for man in space, but, like the United States, wanted to find out what the possibilities were. "We think we are providing a base for military power if we want it," Webb stated.<sup>1</sup>

Moscow's diplomatic assurances that it intended to adhere to the 1963 U.N. resolution gained credibility in that they corresponded or at least did not conflict with contemporary statements of Soviet strategic doctrine. Soviet military spokesmen emphasized in 1964-1965 the great significance of missilery, including ABM defenses, but they appear not to have extolled the specific utility of space weapons--except to accuse the United States of planning to use them.<sup>2</sup> Marshal Sokolovskii in February 1965 went so far as to deny the utility of weapons in space.<sup>3</sup> The Soviet Union, he said, "sees no sense in developing space weapons," for the weapons already stockpiled on earth sufficed to destroy all living things. On the contrary, Sokolovskii went on, the Soviet Union strove to ensure that engines of destruction were not stationed in space, for that would be a complete waste of resources and

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<sup>1</sup>The Washington Post, March 23, 1965, p. 2.

<sup>2</sup>See sources cited in Wolfe, op. cit., p. 313, note 22.

<sup>3</sup>The contrast between Sokolovskii's 1965 remarks, on the one hand, and the 1962 and 1963 editions of his treatise on military strategy, on the other, was most striking. The revised version of his book appeared in 1963, prior to the U.S.-Soviet understanding on banning weapons in space. It did not retract the 1962 edition's warnings that the Soviet Union should take strong steps to prevent U.S. superiority in the military uses of space. The 1963 edition added the charge that the Pentagon was studying the military potentiality of the moon for "communications, reconnaissance and as a base for cosmic means of attack." Further, the 1963 version added that "the concept of the 'spatial scope' of a future war must be basically amended, because military operations can also embrace the cosmos." (V.D. Sokolovskii (ed.), Voennaia strategiiia [2nd ed.; Moscow: Voennoe izdatel'stvo ministerstva oborony SSSR, 1963], pp. 404, 254, cited in Wolfe, op. cit., pp. 204, 206.

would "not promote but act against the scientific aims of the conquest of space."<sup>1</sup>

While Sokolovskii may not have wanted to emphasize the connection between Moscow's space explorations and Soviet military might, this tie was nevertheless suggested when the Marshal replied to a query as to the range of Soviet rockets. Their range was "unlimited," a fact which he claimed was borne out not only by Soviet military rockets but also by Soviet launchings of sputniks with cosmonauts on board.

Furthermore, in describing the adequacy of Soviet rocket forces, Sokolovskii declared that the Soviet Union possessed "intercontinental, global rockets" with warheads having the equivalent of up to 100 million tons of TNT. By using the word "global" he harked back to a term Khrushchev and others had used in 1962, and perhaps adumbrated Soviet claims of an "orbital" missile in May and November 1965.<sup>2</sup>

For Sokolovskii to say that space could be important militarily was, of course, not in conflict with his statement that Moscow did not believe it necessary or desirable to place weapons in orbit. In any event, in works published before and after his February 1965 news conference, Sokolovskii and other Soviet strategists remained silent about the military utility of outer space and stressed instead the important role and the adequacy of Soviet

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<sup>1</sup>Sokolovskii's comments on outer space were not part of his prepared speech, which stressed the adequacy of Soviet missiles vis-à-vis the United States, but came in response to a query by a New York Herald Tribune reporter as to whether outer space would be used for military purposes in the next twenty years. On the one hand Sokolovskii's remarks should be treated as authoritative, not only because he was then active in publishing on military strategy, but also because he spoke before a specially convened meeting at Moscow's Union House and took questions from the floor, from Soviet as well as Western newsmen. His remarks on outer space and his answers to other questions, as well as his prepared speech, were broadcast both abroad and domestically. On the other hand Sokolovskii's statements had transparent propaganda motivations, and he probably exaggerated the size of Soviet missile warheads (the equivalent of up to 100 million tons of TNT), the quantity of Soviet atomic submarines ("no fewer" than the United States possessed), while he minimized the number of Soviet men under arms (2,423,000--as opposed to over 3 million by Western estimates). Broadcasts by TASS and Moscow Radio on February 17, 1965.

<sup>2</sup>One English version of Sokolovskii's prepared remarks had him saying that the Soviet Union had intercontinental and global rockets; a later version made this "intercontinental, global..." But a commentator for Moscow Radio spoke only of "global" rockets.

strategic and tactical rocket forces.<sup>1</sup> It could also be observed that no claims were made at the Twenty-third Congress of the Communist Party of the Soviet Union in the spring of 1966<sup>2</sup> or at the May Day parade that year to Soviet possession of an orbital missile or other space weapons.<sup>3</sup>

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<sup>1</sup>See, e.g., Marshal Vasilii D. Sokolovskii and Major General M. I. Cheredinichenko, "Military Art at a New Stage," Krasnaia Zvezda, August 25 and 28, 1964; see also the article by the same two authors in Kommunist Vooruzhennykh Sil, No. 7, 1966; see also Marshal A. A. Grechko, "A Mighty Guardian of the Fatherland," Krasnaia Zvezda, February 23, 1966, where the commander of the Soviet Strategic Rocket Forces extols their equipment, especially the mobile ICBM's exhibited on November 7, 1965, but says nothing about "orbital" or "global" missiles; see also Marshal M. Zakharov, "The People's Striking Power," Izvestiia, February 23, 1966, for praise of the Strategic Rocket Forces and their defensive capabilities, but silence on orbital weapons.

<sup>2</sup>Defense Minister Malinovsky's address to the Congress stated that since the 22nd Party Congress in 1961 measures had been taken "to increase the reserve of nuclear warheads for various purposes and to reinforce sharply the equipment of all types of armed forces with means of delivery." Much attention had been paid to "the development of our strategic rocket forces and atomic submarines equipped with rockets. The main efforts of the leading branches of our military industry have been subordinated to the rapid expansion of these forces, the chief means for restraining an aggressor and decisively routing him in a war." Malinovsky also noted the "development of operational and tactical nuclear weapons, especially those of the land forces and the navy." He asserted that "the equipment of the armed forces with conventional weapons has also been expanded in corresponding proportions." Malinovsky's remarks on ABM defenses were less extensive than some previous claims: "Our defenses ensure the reliable destruction of any aircraft and many of the enemy's rockets." (*Italics added.*) For text, see Krasnaia Zvezda, April 2, 1966. Malinovsky's most enigmatic claim--"the establishment of the 'Blue Defense Belt'"--has been explained by East German sources as a reference to Polaris-type submarines.

<sup>3</sup>While Moscow itself does not seem to have claimed again in 1966 a capacity for orbital missiles, the Defense Minister of East Germany, Heinz Hoffmann, was reported in May 1966 to have declared that "the firm shield and sharp sword of the socialist military coalition are the rocket troops of the U.S.S.R., whose orbital, global, intercontinental and medium-range rockets can carry a nuclear warhead with an explosive power of up to 100 megatons to every point on earth. To this are added the atomic submarines of the 'blue defense belt', which can operate in every sea of the world." It was not clear whether this statement is a quotation or paraphrase; cf. AND Domestic Service in German, 1421 GMT, May 25, 1966; no apparent reference to the statement in Neues Deutschland.

Since this statement is clearly designed to press to the utmost all evidence of Soviet military power (probably exaggerating, for example, the size warhead available for ICBM's--not to speak of medium-range or even "orbital" missiles), and since East Germany has been especially interested in obstructing U.S.-Soviet detente, Hoffmann's statement may not even reflect Soviet wishes or capacities.

The upshot of these developments from 1964 through mid-1966 was that both superpowers continued to adhere, at least in their declaratory policies, to the 1963 resolution on weapons in outer space. Propaganda claims and even production of space weapons would be tolerated, although not welcomed, especially by the United States. More important, actual deployment of military support vehicles in outer space would be distinguished from the stationing of weapons of mass destruction. Moscow's acquiescence in this understanding ranked with its tacit acceptance circa 1963 of the legality of unmanned reconnaissance satellites. This, in turn, may have reinforced the Soviet commitment to a pragmatic, limited measures approach to arms control and inspection, as it crystallized in 1963-1964.

These events seemed to vindicate the wisdom of avoiding a formal treaty on arms control in outer space in 1963. Scholars and statesmen concerned with the political implications of science had long debated two polarized alternatives for coping with technological change. Should one attempt to foreclose undesirable technological innovations by prohibitive legislation before they become accomplished facts? Or should one wait to see what is technologically (and militarily) feasible and attempt to control it after the fact, assuming perhaps that the drive of technology cannot in any case be stifled? The 1963 U.N. resolution avoided some of the dangers of both extreme approaches. The very flexibility of the resolution proved to be an asset in some respects, for it did not lay down a set of laws too constrictive to be upheld; on the other hand it provided a climate and some specific indicators describing the consensus of the superpowers regarding the acceptable parameters of military operations in space. To have attempted prematurely to formalize this consensus in treaty language may have risked reaching no understanding in 1963 or one that was later denounced by one of the superpowers.

## VI. "ANTARCTICA" FOR OUTER SPACE?

The 1963 resolution of the General Assembly had withstood the challenges of 1965, but its combination of flexibility plus restraint was far from providing Candide's "best of all possible worlds." Inherent in its permissive and ambiguous nature there were substantial liabilities as well as assets. Although the mutual recriminations of 1965 had been weathered, subsequent circumstances might still see one or both superpowers revise its position on weapons in space. As the capacity of both the United States and the Soviet Union to send manned ships to the planets became evident, pressures increased to give a more specific form to their understanding on arms control in outer space.

Two questions became paramount: first, to ensure that outer space remained essentially off-bounds to major weapons systems; and second, to guarantee that national claims were not made upon celestial bodies. Both concerns were reflected in recommendations of two committees reporting to the White House in December 1965 in connection with "International Cooperation Year," designated by the General Assembly to take place in 1965.<sup>1</sup>

The Committee on Arms Control and Disarmament declared that the recent announcement by the United States of plans for a MOL "gave rise to serious misunderstanding and led some observers to the erroneous conclusion that the United States was repudiating her intention, now embodied in a U.N. resolution, to refrain from placing nuclear weapons in space." The Committee did not call for a treaty to deal with these problems, but it advocated that the United States "continue to reaffirm, as Ambassador Goldberg recently has, her commitment to the General Assembly resolution against weapons of mass destruction in outer space."

The concerns of the Space Committee were broader and its recommendation more sweeping. Noting that "multiple manned landings on the moon" were in prospect over the next several years, it suggested that the U.N. Committee on the Peaceful Uses of Outer Space could direct its Legal Subcommittee to draft a convention to serve as a guide for nationally-sponsored exploratory expeditions there. The report declared:

The Antarctica Treaty stands as a model providing the essential elements of such a convention: suspension of sovereign claims, free access by all for scientific purposes, exclusion of military maneuvers and weaponry, and a verification procedure.

<sup>1</sup>The Committee on Arms Control and Disarmament was headed by Jerome B. Wiesner, then Dean of Science at M.I.T.; the Committee on Space by Joseph V. Charyk, Chairman of the Communications Satellite Corporation. (Continued on page 93)

Such a convention, the committee went on, "would give substance to the principle, already adopted by the U.N. General Assembly in December 1963, that celestial bodies are not subject to national appropriation. It would become, in effect, a code for human activity on the moon.

Editorially, The New York Times gave the Committee's recommendation its full support.<sup>1</sup>

The Kremlin also showed an increasing concern in 1966 to reduce the anarchical possibilities inherent in unrestricted competition in outer space. As noted earlier, Moscow went on record in 1962-1963 as favoring a multilateral treaty specifying the legal principles to guide nations in the exploration of space. In December 1963, however, the Soviet Union nevertheless joined the other nations in the General Assembly in endorsing a "Declaration" of such principles, noting however that such a document "could not...deal with the matter of military uses of space." It was quite clear, said the Soviet Ambassador,

that the question of the prohibition of the military uses of outer space can be solved only in the context of disarmament, with parallel and simultaneous liquidation of foreign military bases on the territory of other states.<sup>2</sup>

By late May 1966 Moscow had clearly dropped this linkage of space arms control with terrestrial disarmament. A number of signs appeared earlier in the year suggesting that the Kremlin was becoming more serious about space arms controls as a separate measure. But these indicators were also ambivalent in that they had obvious propaganda motivations as well as a potential for providing a broader base for an accord on an arms control regime in outer space. Thus, in January 1966 Academician Blagonravov suggested to the U.N. Committee on the Peaceful Uses of Outer Space that an international conference on outer space be held in 1967, the tenth anniversary of the launching of the first artificial satellite, an event

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<sup>1</sup>(Continued from page 92)

Both committees consisted entirely of citizens, many of whom had served earlier in the government, and both had the benefit of consultation with officials from various governmental agencies. But the report of the Committee on Space was known to represent a consensus of its members and governmental consultants, whereas the report of the Committee on Arms Control and Disarmament was openly criticized in various respects by many governmental officials. All the reports for the White House Conference on International Cooperation were printed in 1965 by the U.S. Government Printing Office.

<sup>1</sup>The New York Times, November 30, 1965, p. 38M.

<sup>2</sup>Speech of December 2, 1963, by Ambassador Fedorenko in Documents on Disarmament, 1963, p. 637. See above, p. 68.

which he said marked "the beginning of the space age."<sup>1</sup> In February, the Eighteen-Nation Disarmament Conference heard Ambassador Tsarapkin warn that "military circles are scanning the moon to establish military bases there."<sup>2</sup>

Tsarapkin's statement coincided with another major Soviet "first" in space, a relatively soft landing of the spaceship Luna 9 on the moon, from which it sent television signals back to earth. This event was followed by a press conference held in Moscow by the President of the U.S.S.R. Academy of Sciences, M. V. Keldysh. Replying to one question, he stated: "I would ban all military actions on the moon. Our country is against armaments on earth and the more so on the moon." As for the question of rivalry with the United States, "I think that in this field there should be cooperation, not competition." Further, Keldysh stated the Soviet Union did not claim ownership of that part of the moon where the automatic station landed.<sup>3</sup> A Soviet publication later summed up Keldysh's remarks by reporting that "he said the Soviet Union urged prohibition of any military installations on the moon."<sup>4</sup>

Tsarapkin's accusations in Geneva in February 1966 were amplified in the April number of a leading Soviet publication on international politics. It asserted that "hostile imperialists" were calling for "occupation of the moon in order to conduct from there a nuclear war."

The plans of the imperialist strategists to use outer space for military goals kindles war hysteria, justifies the arms race, and in consequence, the dizzying rate of profits for the manufacturers of death.

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<sup>1</sup>The precise utility and purpose of the proposed conference were not very clear. Blagonravov said the conference could provide information for peoples in all countries and training for the developing countries. (The Christian Science Monitor, January 26, 1966, p. 4.) In a gesture toward cooperation with the United States, the U.S.S.R. Academy of Sciences elected three U.S. scientists as members in early 1966, raising the total of U.S. membership in the Soviet Academy to six. Five Soviet scientists were already members of the U.S. National Academy of Sciences. (The New York Times, February 12, 1966, p. 4.)

<sup>2</sup>The Christian Science Monitor, February 9, 1966, p. 2.

<sup>3</sup>TASS International Service in English, 1005 GMT, February 10, 1966.

<sup>4</sup>Whether this summary read more into Keldysh's remarks than was actually present is difficult to determine on the basis of the TASS broadcast cited above. (New Times, No. 24 [June 15, 1966] p. 15.)

Arguing that the responsibility for such plans did not lie with "generals" alone, the article stated that the U.S. Congress had authorized \$25 billion in five years for outer space, and not just for research. Citing a British source the article took note of a number of strategically useful U.S. developments in space: reconnaissance satellites passing over Soviet military objects; "Spasur," the radio-wave fence in the southern United States which "constantly follows all artificial bodies launched into outer space"; the early warning missile defenses extending from Alaska to England; the Nike-Zeus anti-satellite force stationed on Kwadjalein and a parallel system using Thor rockets based in the Hawaiian Islands; the SV-5 "falling tear" rocket capable of maneuvering in space; the MOL in which "two Air Force officers with the assistance of advanced equipment will be able to observe the surface of the earth, the atmosphere, and outer space"; and finally, experiments to rendezvous with other space ships.

On these grounds the Soviet article seconded the question raised by its British source: Would not military competition in space come to predominate over scientific exploration? Ostensibly, to be sure, the Soviet publication opposed all such measures to militarize outer space. But there was implicit the suggestion that, if the United States engaged in such programs, the Soviet Union must do the same. In general, the article (entitled "Socialist Aspects of the Mastery of Outer Space") attempted to justify the Soviet space program against those who called for using its resources for the immediate needs of mankind. On the other hand the author may also (or instead) have intended to argue that to place nuclear weapons in outer space was sheer folly, for he stated that the U.S. imperialists who "dream" of stationing thermonuclear weapons on the moon forget one "'trifle': that such an expedition would cost \$7 trillion--approximately 120-130 times the short annual budget of the U.S.A."<sup>1</sup>

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<sup>1</sup>E. Kolman, "Socialist Aspects of the Mastery of Outer Space," Mirovaia ekonomika i mezhdunarodnye otnosheniia, No. 4 (1966), pp. 36-37. A more hostile tone characterized comments in April 1966 by Colonel Yuri Gagarin, the first cosmonaut, and Marshal Vershinin, commander of the Soviet Air Force. At a meeting in the Kremlin attended by Brezhnev, Kosygin, members of the Politburo, cosmonauts, and almost 6,000 members of the public, Colonel Gagarin commended U.S. scientists and astronauts for a "number of interesting experiments." But he expressed regret that "American cosmonautics are increasingly falling under the influence of the Pentagon," (Continued on page 96)

Although the superpowers continued to investigate the military possibilities of outer space, both Washington and Moscow came forward in May 1966 with specific proposals for a treaty to govern the exploration of outer space. Differences of substance as well as protocol distinguished the U.S. and Soviet proposals, but the gaps between them were small compared with the usual starting positions of the major protagonists in East-West negotiations.

Warning that "the time is ripe" and "we should not lose time," President Johnson announced on May 7, 1966, that he was instructing Ambassador Goldberg to seek a treaty with five key elements:

- [1] The moon and other celestial bodies should be free for exploration and use by all countries. No country should be permitted to advance a claim of sovereignty.
- [2] There should be freedom of scientific investigation, and all countries should cooperate in scientific activities relating to celestial bodies.
- [3] Studies should be made to avoid harmful contamination.
- [4] Astronauts of one country should give any necessary help to astronauts of another country.
- [5] No country should be permitted to station weapons of mass destruction on a celestial body. Weapons tests and military maneuvers should be forbidden.<sup>1</sup>

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<sup>1</sup>(Continued from page 95)

which regards outer space as a theatre for future military operations." Similarly, in an article in Pravda, Vershinin expressed "deep indignation" at the military aspects of U.S. space activities. He accused Washington of basing its relations with other countries on cosmic subjects with a view to gaining access to launching pads, tracking stations, and research institutions. (The Times [London], April 14, 1966.) In light of this accusation it was interesting to read a TASS report one day later announcing that Russian scientists had set up two stations in the United Arab Republic and Mali to photograph artificial earth satellites. TASS stated that stations have Soviet equipment and are operated by specialists of the Soviet Union, the U.A.R., and Mali. (The New York Times, April 16, 1966.)

<sup>1</sup>The New York Times, May 8, 1966.

One official stated his belief that the arms control aspects of the President's proposal would most attract Soviet attention. "There is some feeling that the Antarctic Treaty [in 1959] turned out better than we thought it would," he said. "Soviet interests and ours would seem to be quite similar in the matter of space. I think there is every reason to be rather hopeful about this."<sup>1</sup>

Restrained optimism was partially justified when, on May 31, 1966, the Soviet Foreign Minister Gromyko dispatched a letter to U Thant calling for a treaty on the peaceful uses of outer space. The four key points of the Soviet proposal corresponded in large part with those suggested by the United States on May 7. But the Soviet arms control paragraph was much broader. It declared:

The moon and other celestial bodies should be used by all states for peaceful purposes only. No military bases or installations including installations of nuclear and other celestial bodies.<sup>2</sup>

The phrase "for peaceful purposes only" opened the possibility that Moscow meant to bar military support activities such as reconnaissance as well as offensive weapons systems. If so, the road to a treaty might be longer than many observers expected. Further, although neither the U.S. nor the Soviet documents of May 7 and May 31 spoke of weapons in orbit, Moscow's draft treaty made public on June 17 prohibited the orbiting of weapons of mass destruction as well as their stationing on a celestial body. The relevant clause in the U.S. draft announced on June 16, stated that in accord with resolutions adopted by the General Assembly, "no state shall station on or near a celestial body any nuclear weapons or other weapons of mass destruction."<sup>3</sup>

The Soviet letter to U Thant on May 31 went a step toward reversing the usual sequence specified in Soviet disarmament theory: It suggested that

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<sup>1</sup>The New York Times, May 10, 1966, p. 4.

<sup>2</sup>The New York Times, June 1, 1966, p. 22.

<sup>3</sup>Ibid., June 18, 1966, p. 11.

"prohibition of the use of the moon and other celestial bodies for military purposes would prove an important step" in the direction of general disarmament, rather than making space arms control contingent upon earthly disarmament. Such a prohibition plus the creation of a sound legal basis for space exploration, the letter continued, would benefit international cooperation in space and friendly relations among nations. Here too was another shift in Soviet theory, which had previously conditioned space cooperation as well as space arms control on general disarmament.

Gromyko's letter recalled the Soviet initiatives in 1958, 1961, and 1963 which proposed legal accords to govern the use of outer space, bypassing completely any reference to Johnson's proposal of May 7, 1966. As if to dispel any thought that Moscow was acting out of weakness, the Soviet letter prefaced its treaty proposal by recounting the recent "firsts" scored by Luna 9 and Luna 10. These flights, Gromyko wrote, demonstrated "the real possibility of using the moon by man in the very near future...."<sup>1</sup>

The Gromyko letter suggested that the Soviet draft treaty be discussed at the 21st session of the General Assembly in September, 1966, while the United States had proposed on May 9 that the treaty for outer space be debated forthwith in a Legal Subcommittee of the U.N. Committee on the Peaceful Uses of Outer Space. The Soviet position gave rise to fears that Moscow wanted only a propaganda score on outer space, but Moscow agreed in June 1966 to discussions in the Legal Subcommittee.<sup>2</sup> An analogous fear was nourished when Soviet Ambassador Fedorenko, after reading the Gromyko letter to U Thant at a press conference, stressed Moscow's continuing clash with Washington over Vietnam.<sup>3</sup> Anxiety that disagreements in Southeast Asia might prevent a treaty on outer space was eased somewhat by a strong denial in Izvestiia on June 22, 1966, that Moscow insisted on a pull-out of American troops from Vietnam as a precondition for another arms control measure-- a treaty on non-proliferation. Just as Moscow has attempted to justify

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<sup>1</sup>The New York Times, June 1, 1966, p. 22. U.S. officials welcomed what they took to be an "affirmative interest in President Johnson's proposal" of May 7, 1966. (Ibid., June 1, 1966, p. 1; June 17, 1966, p. 15.)

<sup>2</sup>The New York Times, June 23, 1966, pp. 1, 17.

<sup>3</sup>The Christian Science Monitor, June 1, 1966, p. 1.

negotiations on nonproliferation in terms of the dangers resulting from the Vietnamese war, so it rationalized talks on outer space by the need to curb the ambitions of U.S. militarists to rule cosmic space.<sup>1</sup>

The U.N. Legal Subcommittee meetings began on the date requested by the United States (July 12, 1966) and the site proposed by the Soviet Union (Geneva).<sup>2</sup> In this fashion began a set of negotiations that one observer characterized as having a "strikingly businesslike manner." It was probably an exaggeration to say, with one editorial, that the two major space powers displayed a "maximum readiness to make concessions" at the Geneva meetings.<sup>3</sup> But wide areas of agreement could be seen in the draft Treaties proposed by Moscow and Washington on June 16, 1966--almost a month before the negotiations began.<sup>4</sup> When they adjourned on August 4 important differences remained unsettled, but agreement had been reached on nine draft articles of a treaty tentatively approved by the entire 28-nation subcommittee.<sup>5</sup>

The most important development for arms control came two weeks after the Geneva negotiations began when Ambassador Goldberg announced that the United States would agree to the Soviet position that the talks should deal with all of outer space, and not only the moon and other celestial bodies as Washington had originally proposed.

Second, the United States agreed to a draft article expressing the Soviet formula that banned not only the stationing of weapons of mass destruction on celestial bodies, but also the orbiting of such weapons in outer space.

<sup>1</sup>The New York Times, August 6, 1966, p. 22.

<sup>2</sup>The New York Times, June 23, 1966, p. 17; also Life, Vol. 61, No. 6 (August 5, 1965), p. 30.

<sup>3</sup>The New York Times, August 6, 1966, p. 22.

<sup>4</sup>Draft Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, the Moon and Other Celestial Bodies, in letter dated 16 June 1966, from the Permanent Representative of the U.S.S.R. to the United Nations, addressed to the Secretary General, U.N. Doc. A/6352.

Draft Treaty Governing the Exploration of the Moon and Other Celestial Bodies, letter dated 16 June 1966 from the Permanent Representative of the U.S.A. addressed to the Chairman of the Committee on the Peaceful Uses of Outer Space, U.N. Doc. A/AC.105/32.

<sup>5</sup>The New York Times, July 31, 1966, p. 19; The Christian Science Monitor, August 5, 1966, p. 2. For an article by article summary, see U.S. Mission to the United Nations, Press Release, "Text Agreed in Meeting Working Group of the Legal Subcommittee," 9 August 1966.

Further, Moscow and Washington concurred in principles already contained in their draft proposals of June 16: that outer space and celestial bodies should be open to all nations and free of all military activity, and that no state could claim national ownership of any celestial body. They also agreed that international law, "including the Charter of the United Nations," should apply to activities in outer space and on celestial bodies. Accord was also registered on problems which had for several years yielded no agreement: in articles dealing with assistance to and the return of astronauts; liability for damages; avoidance of harmful contamination; jurisdiction and property rights over space vehicles.

Five major disagreements remained outstanding when the Subcommittee adjourned in August 1966. First was the question of reporting on space activities. Washington proposed that any state conducting space exploration

- (a) promptly provide the Secretary-General of the United Nations with a descriptive report of the nature, conduct, and locations of such activities
- and (b) make the findings of such activities freely available to the public and the international scientific community.

Platon D. Morozov, the Soviet negotiator, however, said that reporting should be "on a voluntary basis."

Second, the Subcommittee left unresolved the extent to which installations on celestial bodies should be open to visits. The U.S. draft proposed:

All areas of celestial bodies, including all stations, installations, equipment, and space vehicles on celestial bodies, shall be open at all times to representatives of other States conducting activities on celestial bodies.

Moscow maintained that such visits should be subject to prior agreement instead of being optional "at all times."

A third issue was whether military equipment should be permitted on celestial bodies. The U.S. proposal prohibited the establishment of "military fortifications, the carrying out of military maneuvers, or the testing of any type weapons." But it specifically did not prohibit "the use of military personnel, facilities or equipment for scientific research or for any other peaceful purpose...." This provision, in Soviet judgment, could provide a "loophole" to violate the basic aim of keeping outer space free of military activity. Moscow agreed, however, that servicemen without military equipment could be allowed to engage in scientific research and other peaceful activities.

Fourth, the Soviet Union opposed the U.S. proposal that "any disputes arising from the interpretation or application of this Agreement may be referred by any Contracting Party thereto to the International Court of Justice for decision."

Finally, the United States and Soviet Union were at odds over what nations should be allowed to sign the treaty. Washington did not want to give indirect admission to Communist China by allowing her to sign a document drafted under U.N. auspices. The U.S. proposal said the "members of the United Nations treaty could be signed by Nations or of any of the specialized agencies of Parties to the Statue of the International Court of Justice, and by any other State invited by the General Assembly...to become a party." The Soviet Union, on the other hand, said that the treaty should be open to all nations.

Thus, the Geneva negotiations had failed to live up to the hope that they could produce a draft treaty for consideration by the General Assembly in September. Instead, the Legal Subcommittee would have to continue its own deliberations in New York in September. Despite the differences that continued to divide the U.S. and Soviet approaches, progress toward agreement had been remarkably rapid from May through August 1966. Only time would tell whether the final barriers to a space treaty could be overcome. As the next chapter suggests, however, a series of technological, strategic, political, and economic factors seemed to make it increasingly in the interest of each superpower to surmount these obstacles and move toward an arms control regime for outer space.

## VII. DECISIVE FACTORS IN SOVIET AND U.S. POLICY, 1966

Neither Washington nor Moscow is of one mind in the mid-1960's on the desirability or feasibility of exploiting outer space for military purposes. Pressures and counter-pressures arise from a complex of technological, military, political, and economic considerations. The thrust of these considerations has varied over time, seeming to militate in one direction and then another. Factions within each government continue to argue both sides of the case, but it appears in 1966 that the White House and the Kremlin have opted in favor of taking decisive steps toward preventive arms control in outer space. Their apparent intent has not been to rule out all military uses of space, such as early warning and surveillance systems, but they do seem to aim at precluding the stationing of weapons of mass destruction in orbit or on celestial bodies. To what extent they also seek to rule out active defense systems in outer space is not clear, owing in part to the difficulty in distinguishing these systems from weapons of mass destruction.

The fundamental factors bringing each side to this view have probably been technological and strategic, reinforced however by compelling political and economic considerations. These will now be evaluated one by one.

### Technological-Strategic Factors

The words and deeds of both superpowers in 1966 indicate that they are in fact "racing for the moon" and are likely to arrive there in several years. A common view in the West is that the Soviet Union will be the first to orbit a manned spaceship around the moon and bring its crew back to earth, but that the United States, not long afterwards, will be the first to land men on the moon. Whether or not this prediction proves accurate in detail, the evidence is overwhelming that both superpowers will be able to reach the moon within a relatively close span of one another--probably before 1970. Even before men reach the moon, they will be orbiting the earth in laboratories. Although it will be 1967 or 1968 before either side orbits laboratories in which men can work comfortably for relatively long periods of time, such flights have already been adumbrated by two-manned space missions successfully completed by Soviet and U.S. astronauts in the mid-1960's.

Given the feasibility of such flights around the globe and to celestial bodies, what is the potential role for the military in space? Two competing philosophies have been expressed: Proponents of exploring the military's role contend that the strategic uses of space cannot be foreseen; that wherever man has gone, he has developed the capability to fight; that the history of world politics demonstrates that nations will exploit for military uses whatever technological capacity they develop. Against this thesis is the hope of some that "for the first time on the international scene, it might be possible to avoid the giddy cycle of law chasing power but never quite catching up."<sup>1</sup>

Apart from philosophy, practical questions remain about the specific uses and utility of weapons in space, insofar as these can be evaluated for the foreseeable future. First, however, a distinction must be made between direct and support military activities in space. Direct operations include the placing of weapons of mass destruction (missiles or more exotic devices) in orbit or on celestial bodies; in contrast to weapons that shoot from space to earth, other direct military applications include weapons for use against other space ships or against missile launchings from earth; finally, weather control from space may also be considered a direct military function. Support missions include reconnaissance, surveillance, and targeting activities, as well as the transportation of men and material through outer space.

#### Direct Military Applications: Bombs in Orbit

From the standpoint of either superpower, bombardment systems in space appear to be superfluous, expensive, and dangerous. The situation in 1966 seems little different from 1962 when Deputy Secretary Gilpatric enunciated the Defense Department's view that to place thermonuclear weapons in orbit was "just not a reasonable strategy for either side in the foreseeable future."<sup>2</sup> Or, as Assistant Secretary of Defense McNaughton put it in 1963:

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<sup>1</sup>Editorial, 101 Solicitors J. 965 (1957), quoted in Philip C. Jessup and Howard J. Taubenfeld, Controls for Outer Space and the Antarctic Analogy (New York: Columbia University Press, 1959), p. 267.

<sup>2</sup>Documents on Disarmament, 1963 [sic] (Washington: U.S. Arms Control and Disarmament Agency, Publication 24, 1964), p. 537.

At least so long as the targets are on earth, the satellite platform--when compared with a ground, ship, or aircraft platform--promises less payload, less accuracy, less reliability, and less control. Even when we look ahead, we must remember not to compare some conceptually advanced version of the bomb-carrying satellite with the ballistic missile of today. As time passes, the ballistic missile will lend itself to a number of advanced variations.<sup>1</sup>

The basic reason why it would be superfluous to put bombs into orbit is that both Moscow and Washington have sufficient reason to believe that their land- and sea-based missiles and bombers already provide and will continue to provide as persuasive a deterrent as is humanly attainable. The Soviet Union is confronted with a roughly 3:1 U.S. superiority in numbers of ICBM and Polaris-type missiles and long-range bombers. But Moscow continues to hold Europe "hostage" by almost 800 intermediate and medium-range missiles, and its strategic force is so powerful that Defense Secretary McNamara testified in January 1966 that even the best and most costly mix of damage-limiting measures, including ABM and civil defense, could hardly hope to reduce American fatalities from a Soviet first-strike below 50 or more million lives.<sup>2</sup>

At least six major considerations have been raised that run counter to the above argument. First, from the U.S. point of view, some strategic analysts have argued in 1966 that qualitative and quantitative improvements in the Soviet missile force may soon change U.S. "superiority" to parity or even create a "gap" in Russia's favor. These strategists usually focus on Washington's decision not to increase the numbers of U.S. missiles in the late 1960's.<sup>3</sup> Their arguments tend to overlook the dramatic and important gains in accuracy, penetration capability, firepower, and other improvements being made or projected for U.S. missiles in the immediate future.<sup>4</sup> If Washington wishes, of course, it can exercise the option of

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<sup>1</sup>John T. McNaughton, "Space Technology and Arms Control," in Maxwell Cohen (ed.), Law and Politics in Space (Montreal: McGill University Press, 1964, p. 66.

<sup>2</sup>See excerpts from statement before the House Armed Service Subcommittee on January 25, 1966, The New York Times, January 26, 1966, p. 10; see The Military Balance, 1965-1966 (London: The Institute for Strategic Studies, 1965), esp. p. 40.

<sup>3</sup>See e.g. Hanson Baldwin, The New York Times, July 14, 1966, p. 14.

<sup>4</sup>See e.g., the testimony of Defense Department officials cited in Jeremy J. Stone, Containing the Arms Race (Cambridge: The M.I.T. Press, 1966) pp. 131-132.

increasing the numbers as well as the quality of U.S. strategic forces. Hence, the United States need not resort to weapons in space in order to counter increases in Soviet strategic power.

Second, it is argued that weapons in orbit may be necessary to provide an invulnerable second-strike capability. But the number and quality of hardened missile silos and missile-carrying submarines possessed by both superpowers make additional weapons in space redundant.

Third, if either superpower successfully constructs an anti-ballistic missile defense against land- and sea-based rockets, it may be necessary to have weapons stationed in outer space which could penetrate these defensive systems. While theoretically plausible, this thesis makes an assumption the validity of which has not yet been demonstrated: that a workable and effective defense against land- and sea-based missiles can be built. It makes the less plausible assumption that, if a relatively effective ABM system is constructed, it cannot be overcome by increases in the numbers or changes in the characteristics of these missiles. Further, it presumes that one or the other superpower builds the fall-out shelters needed to protect against the radiation that would result if only a small number of enemy missiles pierced the ABM network or exploded above the defended territory. In any case, should either superpower construct a defense adequate against land- or sea-based missiles, it may also be able and willing to build one against weapons from outer space.

Fourth, it is suggested that a missile shot from orbit would afford less warning time--perhaps a total of four or five minutes--than one fired from a far distant continent, which could be monitored by infrared sensing devices. A comparison of different systems would of course have to examine the warning time afforded by a strike from space with that provided by a Polaris missile fired near the enemy coast or, in the European environment, with a medium or intermediate-range missile.<sup>1</sup> In all these cases the warning time is quite brief. If there is no effective defense, of course, a variation in warning time from an hour to five minutes makes little difference for the protection of population, although it could well be

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<sup>1</sup>This comparison is not relevant, however, if it is supposed that a space-launched weapon were used for a surprise attack while submarine-based missiles were reserved for employment in a later stage of a nuclear exchange.

critical in ensuring that a retaliatory blow was launched.

Fifth, analysts warn that four to five years lead time are required in order to produce a workable weapons system and that the United States should be careful not to be caught off guard by a Pearl Harbor-type demonstration of Soviet missiles in orbit. But such a contingency is very remote. For years both superpowers have been judged technically capable of orbiting missiles, but they have chosen not to for political and strategic reasons. If one power should decide to put bombs in orbit, the other could reciprocate quickly, since each continues intensive research and development of rockets and space exploration. Whether or not the United States should reciprocate if Moscow decides to launch space weapons (or build ABM defenses) is another matter, however, for U.S. security might well be better protected by other types of compensatory measures. Furthermore, as Assistant Secretary of Defense McNaughton has pointed out:

The present availability of rapid and reliable means of delivering nuclear weapons makes it very unlikely that any single innovation in delivery systems will prove decisive in a military sense. The bomb-carrying satellite appears to be no exception. Such a vehicle would not for the foreseeable future be as effective from the military standpoint as existing types of ballistic missiles.<sup>1</sup>

A sixth contingency, despite the logic of arguments such as McNaughton's, is that the Kremlin might be tempted to station missiles in space as a quick means of transforming the game so as to regain the bargaining position enjoyed by Khrushchev in the late 1950's. This attraction could derive from two sources: first, confidence in a continued Soviet lead in booster and other space capabilities; and second, the long-standing Russian predilection for psychologically compelling displays of power.<sup>2</sup> (Indicative perhaps of Soviet thinking, "deterrence" is rendered in Russian as "terrorization."<sup>3</sup>)

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<sup>1</sup>McNaughton, loc. cit.

<sup>2</sup>It is not necessarily true, as Herman Kahn has stated, that--unlike military programs--"space programs are not psychological. If they do not work objectively, they are noticed." While intelligence analysts and governmental leaders may downgrade, e.g., the significance of an orbital rocket (particularly if it is only shown, and not flown), the psychological impact on mass opinion may be profound. Kahn's elucidation, however, qualifies his point further: "...it is very likely that equipment developed for space will be reliable at least in peacetime." On Thermo-nuclear War (Princeton, N.J.: Princeton University Press, 1960), p. 486.

<sup>3</sup>The same thing is true, however, in German.

While we do not know what reasoning is most cogent to the Soviet leaders, they probably appreciate that, although terror weapons in space may have strong psychological reverberations important in international bargaining, such devices will also be evaluated objectively for their strategic import. The fact would remain that U.S. second-strike forces could not be crippled by a surprise blow from outer space. Further, the history of the 1950's (not to mention comparable situations in World Wars I and II) suggests that U.S. industrial capacity can quickly overtake and outproduce the Soviet Union in any dimension of arms competition in which America seems to lag. Whether for these or other reasons, the Kremlin in 1966 seems to place its reliance on improvement of land- and sea-based offensive and defensive systems, and to show a serious interest in keeping major weapons systems out of outer space.

If the psychological, "quick fix" potentialities of space weapons might appeal to some Russians, a seventh aspect of the problem has intrigued some Westerners: the prospect of a "limited war" in space. This notion has been elaborated in the work of a Russian émigré,<sup>1</sup> but it rings a familiar chord in the emotions of others in the West who share the assumptions that (1) an armed conflict between capitalism and Communism is inevitable; (2) such a war could be fought so that one side "surrendered"; (3) the geographical bounds of this combat be contained. To these beliefs it must be said, first, that such a clash is not inevitable, although assertions to that effect may make it more likely. Second, the prospect that one side or the other would surrender after being defeated in outer space is extremely remote. Third, the closer the problems of space warfare are studied, the less likely it seems that a decisive encounter could be staged there, and the more likely that the war in space would spread quickly to earth.

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<sup>1</sup>M. N. Golovine, Conflict in Space (New York: St. Martin's Press, 1962). For a more sophisticated treatment, stressing the destabilizing as opposed to the stabilizing possibilities in various types of limited space war, see Clark C. Abt, "The Problems and Possibilities of Space Arms Control," Journal of Arms Control, I, No. 1 (January 1963), pp. 26-29.

### Direct Military Applications: Other Weapons in Space

In addition to missiles in orbit, military analysts continue to evaluate the utility of other weapons of mass destruction that could be placed in outer space. As of 1966, information publicly available does not suggest any belief that a weapon can be developed which is practical, the deployment of which would enhance national security beyond the potentialities inherent in land- and sea-based weapons. A laser ray, for example, might conceivably be made effective against enemy satellites or incoming missiles. But even for these purposes the laser has an extremely high energy requirement. As for becoming a "death ray" capable of striking civilian population, it seems quite doubtful that beam-directed energy weapons will be able to pierce the earth's atmosphere from outer space, since anything that diffuses light, such as clouds, destroys its usefulness.

Other kinds of space weapons that could be directed against terrestrial targets have been conceived, but they are not generally believed (at least in Washington) to be cost-effective relative to missiles. As for weapons systems on the moon and other celestial bodies, most Western analysts seem to agree that the difficulties in launching a strike toward earth are too formidable to justify attempting such operations.<sup>1</sup>

Research and development continue on systems of active defense that could intercept and destroy enemy missiles close to their point of firing instead of waiting for their descent over target. Missile-carrying satellites or other ABM weapons would have to detect and destroy enemy missile launches. The difficulty and the cost of developing and maintaining such a system over enemy territory would be formidable, to say the least, but it would be still more complex to direct such defenses against Polaris-type launchings close to one's own shores. An ABM defense in outer space must discriminate not only between heat emanating from missiles and heat emanating from other sources; it must also distinguish enemy from "friendly" missiles, whether land- or sea-launched.<sup>2</sup>

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<sup>1</sup>See the sources cited in Vernon Van Dyke, Pride and Power: The Rationale of the Space Program (Urbana: University of Illinois Press, 1964), pp. 59-60.

<sup>2</sup>Some observers, however, continue to share the estimate made by Herman Kahn in 1960 that by 1969 a breakthrough in sensors and computers to identify and track hostile objects might return the world to a "situation similar to World War I, where the defense seemed to be intrinsically superior to the offense during most of the war." (Kahn, op. cit., pp. 494-495.)

Studies also proceed on orbital weapons that can identify, neutralize, and destroy other space vehicles. The feasibility of rendezvous with friendly space vehicles has been demonstrated. But it is not clear that an enemy spaceship can be inspected from outside; that it could not escape rendezvous; or that it could not destroy the inspecting vehicle. If undesirable contents were found in the vehicle, the question "After Detection--What?" would remain. Defense Department officials have indicated that it is more feasible to destroy an enemy satellite from the ground than from another space vehicle, and that the United States already has this capability. Another problem with either manned or unmanned inspection vehicles is that a determined foe could probably overwhelm and outflank them by sending large numbers of decoys and armed vehicles into space.

One more type of potential space weapon should be noted here: weather control. Meteorology for military purposes could be directed from ground stations and/or by manipulation of weather conditions from space, e.g., by explosions.<sup>1</sup> The consequences upon terrestrial struggles could be far-reaching. Weather control as a tactical combat device is probably quite undeveloped by comparison, say, with bacteriological-chemical-radiation weapons. But it is similar to them in that such swords can cut two ways, hurting the user as well as the intended victim. Allowing for vast advances in the art, meteorology could at best be a countervalue (as distinguished from a counterforce) weapon; most likely its impact would extend to neutrals as well as one's allies and own territory. Its use by one superpower would invite retaliation by the other, as well as reduce the inhibitions of smaller powers to use whatever germ or other "dirty" weapons they had at their disposal.

If, contrary to the foregoing expectations, anti-missile or anti-satellite space weapons should become a reality, it is doubtful that they will be suitable for mass destruction of earth targets, at least when compared for cost-effectiveness with other, more conventional weapons. This contention holds particularly for weapons dependent on beam-directed energy, because of their difficulty in piercing the earth's atmosphere.

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<sup>1</sup>For some of the possibilities, see Van Dyke, op. cit., pp. 34-36; Kahn, op. cit., p. 484.

### Military Support Functions

While doubts persist regarding the feasibility as well as the desirability of direct military operations in space, the accomplishments of contemporary technology make clearer the role that manned and unmanned space vehicles can have in supporting military activities on the land, in the sea, and in the air. Early warning, reconnaissance, surveillance, targeting, command and control--all these tasks can be facilitated by men and machines in space who relay their findings or their instructions to earth.

Both Moscow and Washington seem to agree that such activities cannot be ruled out short of general and complete disarmament. In acquiescing in U.S. photo reconnaissance missions and the MOL (manned orbiting laboratory), and in carrying out such activities itself, the Kremlin has tacitly endorsed the State Department's argument that "the test of the legitimacy of a particular use of outer space is not whether it is military or non-military, but whether it is peaceful or aggressive."<sup>1</sup>

Given that world peace rests in part on confidence in stabilized deterrence, means to strengthen this confidence are welcome from the standpoint of arms control. For this reason improved intelligence arrived at through satellite reconnaissance missions is useful for establishing that neither side is preparing a surprise attack or embarking on other steps that could upset the balance of power.

Reduced to its extreme form, however, this proposition gives rise to three corollaries that need qualification. First, if the interests of peace require greater U.S. knowledge of Soviet missile sites, why should the United States conceal the location of her missile-launching submarines?<sup>2</sup> Two asymmetries must be considered: the greater difficulty experienced by the United States in gaining intelligence data about Russia than vice versa; and the greater likelihood (at least in U.S. judgment) that Moscow would strike first than vice versa--hence the greater need for an assured second-strike force available to Washington. All things are relative, of course, and as the threat of a Soviet first strike seems more remote, and as Russia herself

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<sup>1</sup>Richard N. Gardner, "Cooperation in Outer Space," Foreign Affairs, Vol. 41, No. 2 (January 1963), p. 359.

<sup>2</sup>For discussion, see comments by Roger Fisher, Christopher Wright, and Jerome Wright Spingarn in Cohen, op. cit., pp. 85-88.

acquires a powerful submarine fleet, arms controllers may welcome the existence of an indestructible retaliatory force for both superpowers. In any event the value of mutual observation from outer space will remain; it will assure each superpower that the other is not mobilizing for the all-out effort needed to launch a massive land, air, and sea attack.

A second extreme corollary is that the major space powers should share their knowledge with lesser powers, e.g., so that Washington and Moscow assured China they were not preparing a war against her. This argument suffers first from a lack of realism, for it is unlikely that any power would knowingly contribute targeting information to a potential foe that could not otherwise obtain this data. But the argument is also somewhat irrelevant. The fact that both superpowers may conceivably wish to attempt a pre-emptive blow against one another makes it important for them to be sure that neither is planning a surprise counterforce blow. Not until China becomes considerably stronger could she possibly knock out the U.S. or Soviet second-strike capability. Because neither Washington nor Moscow need worry about a Chinese first-strike, the chances are less that Peking might be attacked pre-emptively.

While China need not fear a pre-emptive attack, she has more basis for concern that Moscow or Washington might launch a preventive war, especially one designed to halt development of her nuclear arsenal. Should one or both superpowers offer to prove their peaceful intent by sharing reconnaissance data with Peking, China's fears of foreign attack would be somewhat assuaged. Since she would probably rely on a countercity strategy in a nuclear exchange, detailed information about U.S. or Soviet missile sites would be of little direct use to her.

A third corollary argument holds that, since reconnaissance contributes to peace, the United Nations should carry on or supervise a world-wide system of satellite inspection.<sup>1</sup> For better or worse a number of practical problems

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<sup>1</sup>This proposal was made by an adviser to President Eisenhower following the announcement in 1965 of U.S. plans to test a MOL. Several years earlier the editor of Space Age News suggested that "before multifarious alliances create teams of observation satellites performing duplicate surveillance functions, the U.N. should take the initiative in this activity....Surveillance results would be available, simultaneously, to all nations. Any outside efforts that might then ensue would merely duplicate the U.N.'s program--perhaps checking and verifying its findings...." The main question of feasibility discussed by the author are technological, although he does suggest a pro rata tax assessing U.N. member-nations in proportion to their membership assessments. See Martin H. Waldman, "The Practicality of United Nations Surveillance," in Frederick J. Ossenbeck and Patricia C. Kroeck (eds.), Open Space and Peace (Stanford, California: The Hoover Institution, 1964), pp. 216-224.

preclude such a development for the foreseeable future. As U.N. officials are quick to concede, the United Nations has neither the personnel, the know-how, the funds, or the equipment to maintain or even launch a world reconnaissance program in outer space. To urge that it be given a key role in an "open skies" operation is only to highlight the limitations of the world organization and to raise hopes that will necessarily fail of realization. Any role the United Nations played in outer space arms inspection would have to depend on the cooperation of the Soviet Union and the United States--the very nations whose counterforce potentialities most warrant observation. Finally, since Moscow and Washington already have a national reconnaissance capability in space, they do not need international or even bilateral cooperation to inspect one another. There seems no objective need for "four [or two] men in a jeep" to tour outer space in a way the international zone of Vienna was policed before May 1955. If, on the other hand, technical and political conditions permitted one reconnaissance system to service both the United States and the Soviet Union (and perhaps other countries as well), there would be not only a certain economy but also a powerful stimulus to bilateral or multilateral cooperation generally.

The Janus-like aspect of reconnaissance from outer space should not be overlooked. While "open skies" may help arms control, it can also facilitate the planning and waging of war. It can provide coverage of terrestrial targets and movement that is wider, more up-to-date, and more reliable (less subject to enemy intercept) than would otherwise be available. Command and control of military forces may be enhanced by global weapons release systems and more secure communications.<sup>1</sup> There is also the possibility that improved intelligence about an enemy's weaknesses (or growing capabilities) could tempt a first-strike that might otherwise be restrained by uncertainties.

We must recognize that it is probably impossible to legislate the prohibition of observation satellites and other space activities that can support terrestrial combat. This loss for arms control is compensated, however, by the contribution of reconnaissance to each superpower's confidence that its adversary is not preparing a pre-emptive attack.

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<sup>1</sup>Abt, op. cit., pp. 31-32.

### External Political Factors

The thrust of technological and strategic considerations militating for an accord on arms control have gained momentum in 1966 from a relatively favorable constellation of external political factors confronting both the White House and the Kremlin. As the U.S. and Soviet leaderships look toward the third world, they find substantial incentives and few restraints to conclude a treaty on outer space.

There is a kind of one-to-one relationship between the perceived utility of space arms controls and the balance of technological and military power. That is, the extent to which national security interests are served by such measures can be measured against what one believes or anticipates this balance to be. Whether or not a treaty is actually signed, however, depends on many factors extraneous to its formal content. Arms control arrangements can be facilitated or hindered by a number of foreign and domestic political and economic considerations, and most governments have viewed them in part as an instrument for controlling the temperature and direction of international relations.

The U.S. and Soviet governments under President Kennedy and Premier Khrushchev indicated a serious desire to moderate their adversary relationship by elements of cooperation and conflict control. Arms control agreements, including the 1963 understanding not to orbit weapons of mass destruction, proved to be a most useful way of achieving these goals. This orientation continued under President Johnson in 1964, but it dissipated as Khrushchev's successors attempted late in 1964 to come to terms with Peking, and--even as they ceased these efforts--escalation in Vietnam faced the Kremlin with what it regarded as "imperialist bombings of a sister socialist state." Since February 1965 the war in Southeast Asia seems to be the key factor impeding an improvement in the U.S.-Soviet relations.

Both the White House and the Kremlin would prefer that this source of tension be lifted; failing that, Washington seeks to compartmentalize the conflict, setting it apart from its general relations with East Europe and the Soviet Union. The Kremlin has also shown some willingness to distinguish its policy toward Vietnam from its dealings with the United States in other matters. But Moscow's approach to this problem has vacillated wildly in 1965-1966. Thus, in June 1966 Izvestiia proclaimed that the withdrawal of

U.S. troops from Vietnam was not a precondition for the signing of a non-proliferation treaty, while in July, Moscow obtained a very sharp denunciation of U.S. policy in Vietnam from the Political Consultative Committee of the Warsaw Pact, including a threat to dispatch volunteers if they were solicited by Hanoi. Such flip-flops in the Soviet position have probably resulted from a contradictory series of variegated pressures--the perceived utility of cooperation with the West, the embarrassment caused by escalation (whether by Communist or U.S. forces) in Vietnam, vulnerability to Chinese criticism, the opportunity to make a show of Communist-bloc solidarity behind Soviet leadership, and--though little information is available--the tugs and pulls of various factions within the Soviet leadership.

Both Moscow and Washington seem to have believed in 1965-1966 that a treaty on non-proliferation had merit in itself and that it would help to reduce or at least regulate East-West tensions. Indeed, both governments have endorsed the view that the intensity of the war in Southeast Asia makes it more rather than less urgent to reach an agreement on non-proliferation. The failure to produce such an accord has apparently been due to Soviet insistence on preventing further nuclear sharing in NATO and possibly on dismantling sharing arrangements that already exist; Washington, for its part, has sought to keep open options for further institutions for nuclear-sharing and, at a minimum, obtain a treaty that does not prevent the two-key arrangements developed in recent years.

The growing awareness in 1966 that neither superpower is ready to make large concessions to obtain a non-proliferation treaty has made it more imperative to find other areas of arms control where agreement might be easier to secure. Preventive arms control in space thus becomes a likely candidate. The onrush of technology already makes such an agreement urgent, so that neither superpower is tempted to extend the arms race to a new level that would be more dangerous and expensive but without greater deterrent effect. At the same time such an accord might be relatively "cheap" in the sense that it does not force the major space powers to fore swear direct military functions of obvious strategic importance.

A treaty that limits primarily two powers will be simpler than one that raises serious problems with allies and third parties. Unlike the issue of

a non-proliferation treaty, an agreement on outer space does not substantially affect the interests of either superpower's allies. To be sure, any movement toward detente tends to reduce alliance cohesiveness. NATO is particularly vulnerable to such atmospheric changes, because its original *raison d'être* arose from a fear of a Soviet Drang nach Westen. A U.S.-Soviet accord on outer space would presumably give added momentum to voices like those of Adenauer and de Gaulle who proclaim that the Russian bear no longer presents an active threat to Europe. Indeed, the Kremlin has specifically exploited the prospect of Soviet rockets launching French satellites to make more concrete Moscow's ties with Paris. The Warsaw Treaty Organization, though ostensibly formed in response to Bonn's entry into NATO, has been shaped much more than the Western alliance by endogenous forces--mainly--the efforts of Moscow to retain control in Eastern Europe. Insofar as the alliance-mindedness of the East European governments is influenced by external factors, profound alterations and not just atmospheric changes are probably required, e.g., in the military and political threat posed by West Germany.

The Western alliance, in sum, may loosen more than the Soviet in consequence of a treaty on outer space. But Washington seems more anxious than Moscow to establish the principle of compartmentalization in East-West relations, and hence may be more willing to tolerate a marginal increase in centrifugal tendencies within its alliance.

Balancing any loss to Western unity due to a U.S.-Soviet space treaty is the risk for Moscow that any agreement with Washington will damage its position vis-a-vis Peking in the competition for leadership of world communism. Fortunately for arms control, however, Soviet vulnerability to Chinese criticisms has reached perhaps an all-time low in 1966. Peking's aggressive foreign policy line suffered a series of dramatic rebuffs in 1965-1966, culminating in the virtual elimination of the Indonesian Communist Party. Domestically, the "cultural revolution" in China has reached such extremes that Chinese statements praising what amounts to a cult of the Mao Tse-tung personality have been reprinted without comment in the Soviet press.

Thus, the United States can move toward a space treaty without undue risk of offending her West German ally, and Moscow can reciprocate without excessive anxiety about the fulminations of Peking over "collaboration with imperialism." The major danger on the horizon in 1966-1967 is that escalation of the war to targets close to Haiphong and Hanoi will provoke deeper Soviet involvement in the war or, short of that, will make the political cost of a space treaty prohibitive to the Kremlin's public image.

The superpowers' incentives to move toward an accord on outer space are boosted from a desire in both Washington and Moscow to prove to the third world that their respective foreign policies are peaceful and, more particularly, that their costly space explorations are for science, not war.

Looking beyond the immediate gains from a treaty on outer space, both Washington and Moscow probably calculate that such an accord will facilitate a broad range of other measures to improve East-West relations. At a minimum it would help control the tensions arising from the war in Southeast Asia. It could even set the stage for a more active Soviet role in bringing that war to the negotiating table. With or without some diminution of the Vietnamese conflict, a treaty on space could facilitate a ban on nuclear proliferation, because the potential nuclear powers have been calling for some renunciation of arms by the nuclear powers themselves as a quid pro quo, and because the willingness of Moscow and Washington to compromise will probably increase if there is some semblance of a return to the "spirit" of 1963.

#### Domestic Politics and Economics

Internal as well as external considerations reinforce the interest of the White House and the Kremlin to reach an accord on outer space. The Johnson Administration seeks to please both hawks and doves, especially in an election year. Sterner measures in Vietnam may help satisfy one group, but alienate the other. A treaty on outer space would help to win back those voters who are repelled by intensification of the war in Southeast Asia.

The Soviet leadership does not have to stand election competition like the American, but--if only to function--it too seeks the support of elite factions and the public. With regard to questions such as space research,

military affairs, and foreign policy, sharp divisions exist within the Soviet industrial, scientific, and military complex--divisions which have their counterparts within the Party and government bureaucracy.<sup>1</sup> The weight of these factions is difficult to assay, particularly at any point in time, but it is clear that a struggle continues to influence the structure of the decision-making bodies and to determine the direction and nature of investments of human and material resources.

The Soviet political and military hierarchy has tended to divide into proponents of "traditional" and "modernist" views, the former stressing the continued importance of balanced conventional and nuclear forces, the latter the role of rockets and surprise attack. One might expect the modernists automatically to incline toward the exploitation of advanced military technology in outer space. But this estimate overlooks one of the salient reasons underlying the Kremlin's interest in rocketry: the possibility of reducing military manpower and other defense costs.<sup>2</sup> It is also possible, although little evidence is available, that Soviet modernists, because they appreciate the destructive power of missiles, also see the value of containing the arms race before it extends to outer space, if only because present deterrence mechanisms suffice. Thus, Soviet modernists are probably divided into a group that argues for reliance on land- and sea-based missiles and a more radical faction militating for weapons in space. The first position probably continues to attract politicians interested in economy, military leaders with certain vested interests, and possibly some scientists and industrial managers lobbying for their own projects. The second position most likely appeals to military, scientific, and economic leaders with a specific stake in space weaponry (as opposed to space technology in general), and to some hard-line politicians who hope for superiority over the United States through outer space.

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<sup>1</sup>See e.g., Albert Parry, The New Class Divided: Russian Science and Technology Versus Communism (New York: Macmillan Company, 1966).

<sup>2</sup>See N. S. Khrushchev's announcement on January 14, 1960, that Soviet armed forces would be reduced from 3,263,000 to 2,432,000 men in the next two years, a reduction which he said was made possible by growing Soviet rocket and nuclear power. (Pravda and Izvestia, January 15, 1960).

Probably the military space lobby plays a relatively small role in the Soviet power structure, especially if compared with the pressures generated by its U.S. counterpart upon the White House and Congress. A broader set of pressures on the Brezhnev-Kosygin regime results from the demands of many political and military leaders for a harder line toward the United States, pressures which are reinforced by the desideratum of maintaining Russia's revolutionary face in the world communism and the third world. Against these elements are ranged another set of demands from individuals and groups who favor concentration on Russia's internal economic development, the reduction of tensions with the West, and less concern for a militant image abroad. Advocates of such views are probably much larger in number than the proponents of greater militancy, but they are generally further removed from the centers of power and their preferences can be more easily disregarded.

An arms control treaty for outer space would not necessarily raise the ire of the largest segment of Soviet hawks, but only the portion specifically interested in space weaponry. The majority of Soviet hard-liners can be placated by increases in the quantity and quality of conventional forces and land- and sea-based missiles, and/or a tougher stance on Vietnam. A wide range of Soviet opinion--both "hard" and "soft" line--urges greater attention to heavy and light industry, rather than to military and space activities. A space treaty would help to reassure public and elite supporters of detente that the Kremlin still pursues coexistence wherever possible. More important, such an agreement would help Moscow ensure that defense spending was stabilized so that greater resources could be devoted to industrial and agricultural development.

Both the White House and the Kremlin seem highly responsive to budgetary considerations. Neither will consciously jeopardize national security for economy, but both are anxious to hold the line on military spending wherever possible. If economic allocations were not already strained, military activities in space might seem a more attractive investment; but if such activities do not have any clear strategic rationale and if they divert needed resources from essential military spending and desirable civilian economic development, their appeal slackens sharply.

The NASA budget like that of the Great Society has been cut back because of the rise in military expenditures due to Vietnam. Early 1966 saw the NASA budget reduced for the first time in history. The only project canceled outright was the Advanced Orbiting Solar Observatory (AOSO), but no new major programs were scheduled for the coming fiscal year. Manned space flight projects, generally considered untouchable, were allocated only slightly less in fiscal 1967 than in 1966, but the cut would have been more apparent were it not for a steep reduction in Gemini funding.<sup>1</sup> As spending for Vietnam has accelerated to still higher levels in 1966, the pressures to hold back non-essential military spending have increased, reinforced by mounting signs of inflation. Looked at another way, the incentives to invest in new aerospace developments have been reduced by the fact that the relevant industries are already intensely occupied with conventional aircraft for Vietnam, with existing missile and space programs, and with projects for supersonic planes. While some champions of the U.S. space program lament the lack of a well-defined post-Apollo program, the head of the Space Sciences Subcommittee of the House Science and Astronautics Committee has questioned the need for a national debate on the next major space goal beyond the moon. Representative Joseph A. Karth declared that the war in Vietnam and the needs of the Great Society program would keep the space budget from expanding soon. He predicted in August 1966 that the more than \$6 billion budget NASA planned to request in January 1967 "is just financially not in the cards for the near future."<sup>2</sup> The budget for NASA and the Defense Department budget for space activities are of course distinct entities, but the same mentality that seeks to avoid unnecessary expenditures in space generally will also strive to hold back on military spending in space unless it has a compelling strategic motive.

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<sup>1</sup> Aviation Week and Space Technology, January 21, 1966; The Washington Post, December 24, 1965; The New York Times, January 25, 1966, pp. 18, 23.

<sup>2</sup> Rather than journeys far from earth, Karth urged that emphasis be given to economic, meteorological, and communication applications from the use of Saturn rockets and Apollo spacecraft in missions near to earth. See The New York Times, August 26, 1966, p. 13.

Indications are that the Kremlin is also struggling to stabilize defense expenditures. The broad objectives enunciated for the Five-Year Plan 1966-1970 suggest that Moscow is engaged or would like to engage in the most serious effort since 1917 to improve consumer living standards in the near future.<sup>1</sup> On the one hand it is true that the Soviet economy has managed to grow impressively, especially in heavy and military industry, despite the fact that it has operated in conditions of international crisis since 1917. On the other hand the marginal advantage of even a few billion rubles released from military investment could be an enormous windfall for the Soviet planner, ever in search of resources to break bottlenecks or to spur investment. The positive effect of such resources re-channeled into fields such as the chemical industry, agriculture, and housing may be disproportionately large.<sup>2</sup> It is precisely these areas where Moscow's planned goals have not been fulfilled and which it now declares it seeks to make good.

The long delay in 1966 in presenting the precise control figures for the plan also suggests, however, that discussion continues over goals or means or both. Diverse objectives are put forward by "metal eaters" and the proponents of goulash or perhaps gastronome communism. The metal eaters are themselves divided among those who want more heavy industry, military investment, and various space activities. Conflicting means are proposed by those who advocate greater decentralization<sup>3</sup> and those who want more centralized controls, effected through computerization. One observer has noted the increased attention to atomic energy applications in the Soviet press may attempt to "offer the basis for a compromise between the defense lobby and the proconsumer economists."<sup>4</sup>

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<sup>1</sup>See Ekonomicheskaya Gazeta, Nos. 48-50, December 1965; for a contrary interpretation, see Timothy Sosnovy, "The New Soviet Plan: Guns Still Before Butter," Foreign Affairs, Vol. 44, No. 4 (July 1966), pp. 620-632.

<sup>2</sup>Gregory Grossman, "The Soviet Economy and the Waning of the Cold War," in Robert A. Goldwin (ed.), Beyond the Cold War (Chicago: Rand McNally and Company, 1966), p. 1964.

<sup>3</sup>Speaking to a Czech audience in July, 1966, Soviet economist Y. G. Liberman declared: "If the plan is to express real needs, it is necessary for it to be based primarily on the market--on supply and demand. Any planning without the market influence is mere administrative planning, if not bureaucratic." As reported from Prague in Prace, July 26, 1966.

<sup>4</sup>Paul Wohl, "Soviets place new emphasis on nuclear-power drive," The Christian Science Monitor, August 22, 1966, p. 11.

While accurate information on the Soviet space program, much less its military component, is not available, one study indicates that Soviet military and space research and development costs have exceeded those of the United States since about 1964. Another study argues, however, that the increasing cost--plus the futility--of military competition with the United States helped to reinforce Moscow's decision in 1963-1964 to seek limited measures of arms control.<sup>1</sup> In late 1965 the official Soviet military budget rose by five percent, allegedly in response to the imperialist threat, but Western economists have seen it more as part of an across-the-board increase in the Soviet budget.<sup>2</sup>

Given these conflicting goals and crosspressures, it seems likely that if Moscow chooses to enhance its defense posture, it will prefer to do so not by stimulating a costly arms race in a new dimension, that of outer space. Rather, if the Kremlin's military priorities could be rank-ordered, the following hierarchy seems likely: first, to improve the Soviet missile and submarine force so as to achieve a more credible parity vis-a-vis the U.S. strategic force; second, to construct anti-missile forces capable of defending Russia against Chinese if not Western rockets; and third, to develop an air- and sea-lift capacity to enable Moscow at least to threaten confrontation with the U.S. gendarmarie in Southeast Asia and other likely foci of limited war.

If one tries to evaluate the total picture, the interaction of strategic, political, and economic factors impacting on U.S. and Soviet attitudes toward space arms control constitutes a very complex pattern. If any equilibrium or main trend has been established, it may be offset by a shift in the weight of any key variable. On the whole, however, the outlook for space arms control is not dim. The salient restraints and incentives confronting Moscow and Washington will be considered briefly in the final chapter.

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<sup>1</sup>Lincoln P. Bloomfield, Walter C. Clemens, Jr., Franklyn Griffiths, Khrushchev and the Arms Race (Cambridge, Mass.: The M.I.T. Press, 1966).

<sup>2</sup>The New York Times, December 8, 1965, p. 1.

## VIII. THE BROAD CONFIGURATION: THE OUTLOOK FOR ARMS CONTROL

The balance of forces in 1966-1967 seems encouraging for space arms control--if not by explicit agreement, at least by tacit restraint. If neither superpower initiates an arms competition in outer space, the other has few compelling motives to do so. The military, political, and economic incentives to abstain from an arms race in space are high; the counter arguments do not appear persuasive for either side, at least in the present technological, political, and economic environment.

The direct military applications of space--whether for offensive or active defense purposes--are costly, dangerous, and difficult to implement and control. They promise little advantage not attainable by increases in the quality or quantity of earth-based weapons. Apart from weapons of mass destruction, satellite weapons against other space ships or as anti-missile defense appear not very feasible or cost-effective, even for the middle-range future. As noted, however, it may prove impossible to outlaw space activities such as surveillance that could support combat operations. Mutual reconnaissance by the space powers, however, may also contribute to stabilized deterrence and hence to arms control.

The main strategic argument against bombs in orbit is that they are superfluous. Politically, the deployment of space armaments could seriously destabilize the mutual trust that adversaries in Moscow and Washington have developed over the last decade--a sense that neither side wants to provoke an atomic exchange. If either party deployed such weapons, the deteriorating effect upon this trust could be severe: At a minimum it would probably lead to an intensified competition in arms, neglecting the consequences for arms control; worse, it could cut by a large factor the time either government is willing to wait before pressing the button in the face of a threat from the other side.<sup>1</sup>

The greatest obstacle to a formal arms control treaty on outer space may derive from external political considerations. China's influence upon

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<sup>1</sup>See also Clark C. Abt, "Problems and Possibilities of Space Arms Control," Journal of Arms Control, I, No. 1 (January 1963), p. 29.

Soviet policy has probably reached an all-time low, due to Peking's inner convulsions and external defeats. The Kremlin declares that it seeks arms controls in space and other realms despite or even because of war and tension in Southeast Asia. But if the Vietnamese conflict escalates further, and especially if Soviet prestige, resources, and manpower become more committed, all bets may be off on arms control. Similarly, the White House may also find itself less willing or less able to move toward a space treaty if the war against communism in Asia becomes more intense, particularly in an election year, and a fortiori if Russia's contribution to the war increases.

Internal political and economic factors in the United States as well as Russia militate against a major allocation of resources to a military space race. But these forces may not suffice to goad the White House and the Kremlin into a formal treaty as distinguished from what Khrushchev called disarmament by "mutual example."

Should the superpowers decide for the present not to conclude a formal treaty, mutual restraint on direct military uses of space is likely, even though both will probably continue to exploit the military potential of communications and reconnaissance from outer space. From the standpoint of arms control, however, a formal preventive measure would be highly desirable. Without it, the prospect remains that one or the other space power will inch its way into military activities, against which the other will likely react and overreact. With a treaty, opposed social and ideological systems will expressly acknowledge their belief in the wisdom of prophylactic legislation to ensure that at least in some respects man is the master of technology and not vice versa. A useful precedent may thus be created for dealing with other technological and military contingencies by foresight instead of hindsight, when opportunities are already in the historical past. Finally, if preventive arms controls are inaugurated, the stabilizing effects will extend not only through outer space but will be felt on terrestrial politics as well.

The superpowers will risk little if they extended their accord to ban weapons of mass destruction to prohibit all direct military applications of outer space.<sup>1</sup> The potential use of manned or unmanned space vehicles for active defense or for offensive purposes seem quite limited. While some would argue that this only proves that it is unnecessary to outlaw such activities, the history of efforts toward space arms control suggests that it is safer and cheaper for adversaries to reassure one another that they do not plan to exploit militarily all possible uses of space technology. If such assurances are not made today, tomorrow may be too late, for one or both space powers may find themselves with a military space capability which they did not need or want, but which defies disarmament once it exists. The beneficent results of explicit forbearance can extend beyond the specific realm of space arms control to improve the general climate of East-West relations, enhancing the prospects for other measures of arms limitations.

While the thrust of the arguments here is to cast doubt on the military utility of outer space, each space power must still seek to ensure that it enjoys free passage in outer space and equal rights on heavenly bodies. There would probably be important military support functions (e.g., communications) as well as commercial and scientific purposes served by national bases on the moon. Perhaps military support activities can be prohibited and other functions "internationalized." At a minimum each space power will want to ensure that it is not denied privileges monopolized by another. But a U.S.-Soviet condominium is as little desirable as it is feasible in outer space. If not in the next decade, then surely in this century, other states will also be "space powers." It is in the interest of all to ensure that an international regime is established to exclude direct military activities from outer space and ensure that all states enjoy the same rights and obligations. In this area, above all others, the needs of all peoples require collaboration above conflict.

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<sup>1</sup>In discussing a ban on direct military applications of space, however, it is probably necessary to exclude missiles launched from earth which pass through space but are not stationed there. Thus, there would be no ban on ICBM's or--a more futuristic prospect--on rockets carrying military personnel and equipment.